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PROBLEMS CONFRONTING THE SECTION ON NERVOUS AND MENTAL DISEASES *

PETER BASSOE, M.D.
CHICAGO

There has never been a time when the American public was aroused to so much interest in the subjects covered by our section as the present. There had been a slow growth prior to the war, to no small extent due to the interest aroused by the psychanalytic and mental hygiene movements. Among the events connected with the war which increased this interest I may mention: the revelation of an unsuspected amount of feeblemindedness and psychoneuroses in the examination of the draft; the unexpected rôle played by psychoneuroses in swelling the number of war casualties, and the official recognition of the importance of prompt treatment of such cases, as indicated by the appointment of division psychiatrists and the establishment of neuropsychiatric hospitals. The economic and social unrest following the war, with its crime waves and revival of many forms of occultism, tend to maintain the public interest thus aroused.

All around there is a demand for information and guidance, especially along lines of psychology and psychiatry. Judges and juries more than ever before turn to us for explanations of abnormal human behavior, and there is a greater willingness on their part to consider the medical and psychologic points of view. In many juvenile and criminal courts, the opinions of the psychiatric adviser, in determining the fate of the accused, are of as great importance as or of greater importance than the paragraphs of law concerned. Among educators we find the same demand. In the grade schools, high schools, and colleges alike, teachers are asking for aid in dealing with problems in connection with behavior or refractoriness to certain studies or activities on the part of pupils.

Shall this aid be given by the psychologist without medical training or by the medical man possessing knowledge of normal and abnormal psychology? Experience has shown again and again the importance of the medical point of view in connection with these problems, and it is our duty to meet these demands for aid and not pass them by default to the nonmedical psychologists. Let me warn you that the medical profession has no time to lose before facing these issues. One has merely to observe the tables of contents of popular magazines and the subjects of lectures before clubs and public and private gatherings of all kinds to appreciate the extent of the invasion of the field of psychopathology by all kinds of lay psychanalysts and psychologists, some of them well trained and well meaning, others dangerously contaminated by occultism, obscurantism, commercialism, or by all of these. Let us apply prophylaxis before radical treatment becomes necessary: We must persist in hammering on the necessity of teaching more psychology and psychiatry to medical students and of making these subjects compulsory for graduation.

Only by bringing up a generation of physicians with such training will it be possible to uproot one of the greatest difficulties in the way of sound neuropsychiatric prophylaxis, one to which particular attention was drawn in last year's address of the chairman of the Section of Psychiatry of the Royal Society of Medicine of England, E. Farquhar Buzzard.[1] Speaking of mental hygiene as a plant we wish to see flourish, he said that "among the weeds which have choked this plant is one that was sown in ignorance and has been nourished on fear; namely, the popular notion that so-called functional nervous disorders or nerves are not mental disorders." He says, further:

> If we eradicate this weed we shall be able to speak quite as frankly about mental disorders as about gastric disorders, and to discuss psychotherapy as freely as we do diet. If we recognize, and cause to be recognized, that there are all degrees and signs of mental disorders, we shall gradually, but surely, break down the barrier which at present separates "nerves" from insanity, and which preserves for the latter the position of a mysterious and malign ogre lurking in the background and ready to pounce upon its victims from an unseen world. No harm is or ever can be done by dispelling ignorance or clearing up mystery.

Our section comprises both neurology and psychiatry. With the growing interest in our subjects and with the time limit of three half days on our deliberations, the question some day may be raised whether there shall be one section in neurology and another in psychiatry in order to give more members a hearing. This year we have had to refuse promising papers for lack of space, and you will observe that the length of our printed program is such that conciseness in our discussions will be absolutely necessary. I wish to go on record as opposed to any such division, no matter how crowded we may be, for I believe that in practice, as well as in teaching, neurology and psychiatry should be welded together and not separated. A neurologist who is ignorant of morbid mental processes and a psychiatrist unfamiliar with organic nervous diseases are equally undesirable, and will prove to be failures in practice and in teaching.

* Chairman's address, read before the Section on Nervous and Mental Diseases at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Buzzard, E. F.: Proc. Roy. Soc. Med. (Sect. Psychiatry) 14:1 (Feb.) 1921.

MEDICAL EXPERT TESTIMONY

If we of the medical profession consider ourselves the proper advisers to educators, jurists and the public at large in matters of psychopathology and neuropsychiatry, we—and more particularly those of us who claim special knowledge in these branches—should take hold both for the public good and in our own interest to remove an evil which is repeatedly discrediting us with the public and often heaps ridicule upon us. I refer to the present method by which medical expert testimony is given in our courts, particularly in cases involving the questions of insanity and mental responsibility. The usual practice of each side selecting experts who appear in court with a partisan label has led to ills so well recognized that I will dwell on only one of them: the resulting public distrust of our opinions. We share this problem with all medical and other professional men, such as chemists and engineers, but we suffer relatively more damage to our reputations, as cases involving questions of mental responsibility are prone to attract a great deal of popular interest and to be exploited by the sensational press. Even the most discriminating lay people are tempted to question not only the exactness of the knowledge, but the common sense and sometimes perhaps also the sincerity of physicians giving testimony in such cases. If we do not always appear sensible and trustworthy when under oath to tell the whole truth, can we expect the public to trust us as advisers in their serious and intimate personal problems?

From this purely professional standpoint alone there is enough incentive to act. What can we do? Ours is only a small part of a large public problem, and we neuropsychiatrists alone can do little more than think and talk. The whole medical profession, however, as represented by the American Medical Association, can do something if it attacks this knotty problem seriously and with willingness to sacrifice individual material gain on the part of a few persons for the sake of promoting justice and incidentally raising the prestige of our profession.

As an initial step we may take up the suggestion recently made in a letter to the editor of THE JOURNAL by Dr. Herman Adler[2] that the American Medical Association create a council on medical jurisprudence "whose main task shall be to work out and establish standards in this subject which can serve as guides not only for physicians, but for the legal profession as well." Other councils of the Association have accomplished great betterment along several lines in the face of great difficulties and opposition on the part of powerful and selfish interests. Let us all agree to devote some of our time and thought to this circumscribed and practical problem, while we also constantly keep in mind the larger ones which I have sketched in a superficial manner in these introductory remarks.

30 North Michigan Avenue.

2. Adler, H. M.: "American Medical Jurisprudence and the Expert Witness," J. A. M. A. **78**: 1220 (April 22) 1922.

Medical Profession to Lead in Health Movements.—Man is too immoral or too careless, indifferent and selfish to permit a millennium of health to occur. Therefore, it behooves us as members of the medical profession to take the part of leadership in local, district and state health movements. Let us medicinize the social movement. That will help it forward and will place the medical profession in a position to rationally direct the health crusade.—F. Billings, *Nation's Health* **5**:219 (April) 1922.

PULMONARY ASPIRATION OF PARTICULATE MATTER, NORMALLY AND DURING ANESTHESIA*

H. J. CORPER, M.D.
DENVER

There are many phases of medicine which are concerned with the question of the fate of particulate matter inhaled and aspirated into the lungs, especially when its distribution and mode of inhalation or aspiration is considered. From the standpoint of infection in pulmonary tuberculosis by the aerogenic route, it is usual to consider two main modes: the inhalation of dry pulverized sputum, as maintained by Cornet, and the inhalation of fluid droplets freshly expelled from the mouths of phthisical patients, believed by Flügge[1] to be the more probable. There is still another important mode, especially preferred by the adherents of the idea that childhood infection is paramount, and supported by the conception of the latency of the tubercle bacillus; that of the hand to mouth infection, occurring during the floor days of the child, as suggested by Krause.[2]

The problem is a complicated one, and in all probability at times any of these may be the mode of conveying the tubercle bacillus to virgin or susceptible soil, although it is impossible at present definitely to state without hesitation just how most pulmonary infections occur. It is rather singular that, in view of the droplet and hand to mouth suggestions, so little consideration has been given the pulmonary aspiration of fluids. Just as there is a difference of opinion regarding pulmonary infection in tuberculosis so the laryngologists do not all agree as to the mode of infection, during anesthesia, in lung abscess following operations on the upper respiratory tract, the three most prevalent conceptions being: aspiration from the upper air passages, lodgement from the blood stream and infection by lymphatic extention. That the aspiration of foreign bodies under certain circumstances occurs quite readily is universally accepted as a fact.

INTRAPULMONARY THERAPY

Viewing this subject from another angle, the feasibility of intrapulmonary therapy suggests itself. Can solids inhaled in very fine suspension, or liquids be introduced into the lung by the respiratory or aerogenic route, for application to diseased pulmonary sites? The distribution and fate of inhaled solids—soot, smoke or dusts has been carefully studied, on account of its enormous industrial and economic significance. In an elaborate American article by Klotz[3] on pulmonary anthracosis, replete with literature, some important points on the inhalation of carbon pigment (smoke) are emphasized. The deposition in the lungs of carbon pigment from the dust laden air is dependent on the respiratory function and the activity of the lymphatics. The inhaled air with its carbon particles is carried to varying depths in the lung tissue. The major amount of the foreign material adheres to the moist walls of

* From the Research Department, National Jewish Hospital for Consumptives.

* Read before the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Flügge, C.: Ztschr. f. Tuberk. u. Heilstättenw. **34**: 212 (May) 1921.
2. Krause, A. K.: New York State J. M. **21**: 83 (March) 1921; Am. Rev. Tubere. **5**: 994, 1922.
3. Klotz, Oscar: Am. J. Pub. Health **4**: 887, 1914.

the respiratory passages and never reaches the lung tissue proper. It is possible that the foreign material that adheres to the mucous membranes of the nose, pharynx, trachea and larger bronchi is but rarely carried into the tissues of these tracts, but, lying in the secreted mucus, is carried upward and is eventually expelled.

The relatively lesser quantity of dust and carbon which reaches the lung alveoli also becomes adherent to the moist surfaces of the alveolar sacs, and then, by the activity of certain cells, is eventually carried into the lymphatics of the alveolar wall, where they are disposed of by the lymphatic system of the part. The subsequent distribution is to a great extent determined by the site of absorption within the lung. The tendency of the absorbed carbon is to pass from the finer lymphatic channels of the alveolar walls to the larger passages, eventually reaching a lymph node, where the onward progress of the particles is impeded by the filtering action of this structure. In the main, the lymphatic drainage of the entire lung converges at the hilus and passes into the peribronchial glands located in this part.

Anthracosis in young adults is more prominent in the apex of the upper lobe, the anterior border of the upper lobe and the posterior border of the upper and lower lobes, but in these areas the distribution is by no means uniform. The unequal distribution of the pigment upon the pleural surfaces has no direct relation to the deposition within the lung. The lack of pigment on the interlobar surfaces and in the rib grooves is only a superficial condition and does not affect the deeper underlying lobules. The earliest deposits are mainly in the perivascular lymphatics of the smaller branches of the pulmonary artery; subsequently pigment appears in the regions of the smaller bronchi and venules.

In all of these situations, its presence becomes more marked with the increasing quantities of soot that are constantly inhaled. No evidence of excessive deposit in the deep tissues at the apex of the upper lobe was noted. More pigment was found toward the hilus than at the periphery, regardless of the pleural distribution.

In acute pneumonia, the involved areas show lesser pigmentation, with a sharp line of demarcation from the more healthy tissues. In caseous pneumonia, there is only a moderate amount of pigment deposit in the caseous areas. In localized chronic caseous tuberculous foci, the pigment deposit increases in direct proportion to the amount of fibrosis. The fibrosed mass may become intensely black. It is probable that only those carbon particles lying within the alveolar sacs can reach a permanent interstitial abode, and that little if any carbon is phagocyted and carried into the tissues from the bronchi or bronchioles. Furthermore, it appears that the carbon reaching the lung alveoli is only a very small portion of the carbon content of the air as inspired, and this portion has reached the lung because it escaped contact with the moist mucous surfaces of the respiratory tract. Carbon deposits, by inducing fibrosis, tend to encapsulate chronic tuberculous foci.

Haythorn,[4] in reporting on the histologic evidences of the disease importance of pulmonary anthracosis, says:

> The fine particles seem to gain entrance into the lung substance by way of the air passages, and it has been stated by some that the mucous membranes of the nose, mouth, pharynx, and larynx, trachea, bronchi and bronchioles contribute largely to the taking in of the pigment, but our observations tend to show that, in this community (Pittsburgh) at least, such is not the case. . . . In the nasal cavities, the vibrissae and turbinates collect a great deal of carbon, which is subsequently removed by the secretions; for, in the examination of nasal polypi and strips of turbinate mucosa removed at operations, we have never seen a single example of free pigment or pigment bearing cells beneath the epithelial layer. . . . In the air passages below the larynx, pigment bearing cells have frequently been observed, but these are either free in the lumen or were surrounded by bits of mucus and other cells and were not found penetrating the epithelial layers. . . . The amount of pigment phagocytosis in the air passages above the lung alveoli must be a negligible quantity. Carbon pigment once taken up by the cells remains intracellular indefinitely unless freed by some process producing general necrosis of the tissues.
>
> The phagocytic cells are not transient scavengers, but in a more leisurely manner gather their pigment load and transport it to the tissue spaces. The lining cells of the lung alveoli take little or no active part in the phagocytosis of carbon pigment. The process consists in the phagocytosis of the pigment within the lung alveolus by a cell, which is probably an endothelial leukocyte. The cell which takes the early active part in the formation of a tubercle is phagocytic for tubercle bacilli and for pigment granules, and is probably an endothelial cell. The presence of pigment granules within these cells does not interfere with the cells taking part in the formation of a tubercle, in the usual way. The presence of pigment-bearing cells in the connective tissue about tuberculous lesions acts as an additional stimulus to fibrosis and encapsulation. The obliteration of the pulmonary lymph spaces in the anthracotic process is unfavorable for the local spread of tuberculosis, and aids in the localization of the condition. In acute inflammatory conditions where the lymphatics are important for proper resolution, anthracosis becomes seriously detrimental, because of the obliteration of the lymph spaces.

4. Haythorn, S. R.: J. M. Res. **29**: 259-79, 1913-14.

EXPERIMENTAL WORK

Studying the quantitative absorption of dust from air of definite known dust content, Saito[5] found that, in animals, from 4 to 24 per cent. of the total amount of dust inhaled entered the respiratory apparatus, the remainder going into the intestinal tract, being caught in the nose and nasopharynx, and then swallowed. The total retained in the body was about 95 per cent. of the inhaled dust. Sneezing acts as a protection against the accumulation of dust in the animal body. In men,[6] about 2 per cent. or less of white lead powder inhaled through the nose was exhaled again, about 51 per cent. remaining in the nose and 3 per cent. in the mouth; when the powder was inspired through the mouth, about 80 per cent. was retained in the lung. Fluid droplets or solutions of potassium iodid, sodium chlorid or sodium chromate may be absorbed to the extent of 96 per cent.[7] The exact site of absorption was not determined.

A great deal of experimental work has been performed to discover the origin and disposition of the characteristic and important epithelioid cell of the tubercle, and the opinions have finally crystallized into the view taken by Foot[8] in his recent studies, which also include experimental studies with India ink (carbon) and pulmonary tuberculosis. His views, which

5. Saito, Yorchiro: Arch. f. Hyg. **75**: 134-51, 1911-12.
6. Lehmann, K. B.; Saito, Yorchiro, and Gfrörer, Walter: Arch. f. Hyg. **75**: 152-9, 1911-12.
7. Lehmann, Saito and Majima: Arch. f. Hyg. **75**: 160-6, 1911-12.
8. Foot, N. C.: Studies on Endothelial Reaction: II, The Endothelial Cell in Experimental Tuberculosis, J. Exper. Med. **32**: 513 (Nov.) 1920; III, The Endothelial Cell in Experimental Pulmonary Tuberculosis, ibid. **32**: 533 (Nov.) 1920; IV, The Endothelium in Experimental General Miliary Tuberculosis in Rabbits, ibid. **33**: 271 (Feb.) 1921.

concur with those first expressed by Mallory and by Klotz and Haythorn, are that the epithelioid cell is of definitely endothelial origin. There is little evidence that the local tissue elements take an active part in the process of tubercle formation, until after the lesion is formed; the reaction is, in a sense, exudative, since the lesion is produced from cells which migrate to the site of inflammation. The lymphocyte appears late and is not to be considered as a potential epithelioid cell; its presence in the tubercles is as yet unexplained. Experimental tubercles are formed in the lung primarily by cells originating in the capillary endothelium. These cells are probably present in small numbers in the normal lung, lying free in both the alveolar wall and the air vesicles. In response to infection, they proliferate in the capillary walls in the vicinity of the invading organisms, migrate in steadily increasing numbers, and, arriving at the site of the infection, further multiply, and, to some extent, fuse to form the syncytia known as giant cells. The epithelial cell takes no active part in the process; its proliferation tends to repair denuded surfaces and is regenerative rather than combative or phagocytic in nature. This cell does not take up carbon (particulate matter), in contradistinction to the endothelial cell. The cells of endothelial origin not only phagocytose tubercle bacilli but also carry them into the tissues; for example, into lymph nodes, by way of the lymphatics, or into other lung lobules by way of the air passages, in which they are readily demonstrable.

The conclusions as to the endothelial origin of the phagocytic cells of the lung tissue coincide in every way with those expressed by Permar,[9] colleague of Klotz and Haythorn, who also emphasizes the nonparticipation of the epithelium in those phenomena of phagocytosis.

Although a great deal has been contributed to the better scientific understanding of the disposition of particulate matter in the lung tissue and lymph glands,[10] certain steps by which this material may gain access to the lower respiratory tract from the upper air passages are still undetermined. It is now generally accepted that anthracosis originates by the aerogenic route of dust inhalation; at least this is the belief expressed in the more recent articles on this and related subjects. That there is direct connection between the various parts of the eye, nasal and oral cavities was brought out with renewed force during the influenza epidemic, in conjunction with studies regarding the use of the gauze mask.

Corper and Enright[11] found that although the greater part of particulate matter (India ink and bacillus prodigiosus) entering by way of the eye is subsequently swallowed and passes into the gastro-intestinal tract, a small but definite portion of it finds its way into the larynx and trachea, where it may persist even as long as a week. In its passage from the eyes, the material traverses a definite channel, dependent on which eye it has entered or into which it has been introduced, being found on the corresponding side of the nasopharynx and tonsil. Infectious material that is ingested is far less likely to enter the respiratory tract than that entering by way of the eye. More recently, Bloomfield,[12] in studying the dissemination of bacteria in the upper air passages, found that sarcina lutea or charcoal particles implanted on various areas in the mouth and pharynx adhered at the site of inoculation. The ingestion of a large glass of water following inoculation did not seem to remove more than a very few of the organisms. Whatever the number removed, such organisms were swallowed with the ingested fluids, and not reimplanted on other parts of the mouth or throat, save for an occasional colony. Organisms inoculated on one side of the tongue traveled along the same side with practically no spread across the midline; organisms inoculated on the tonsil or pharynx did not come forward into the mouth.

In 1920, an article appeared by Mullin and Ryder,[13] which detailed the surprising ease with which fluid suspensions of carbon and tubercle bacilli dropped into the noses of rabbits entered the lungs. "The technic was simple as possible. The rabbit was held, usually on its back, with the nose elevated, and about 1 c.c. of India ink or bacterial emulsion allowed to flow into one nostril from a pipet inserted just far enough to insure the fluid entering the nose." Thus, they obtained almost entire blackening of the upper lobes of the lungs, with many black spots irregularly distributed over the rest of the lungs, especially when the ink was given a number of times. The tuberculosis obtained in the same way had involved the upper and middle lobes when the rabbits were killed after seven weeks.

In the hope of being able to utilize the intratracheal route for the more direct application of therapeutic agents in pulmonary inflammatory conditions, and to elucidate certain phases of pulmonary edema, Winternitz and Smith[14] studied the absorption of fluids from the lungs and found that high quantities of fluid can be introduced through the trachea without untoward effects. In acute inflammatory processes, fluid in the pulmonary parenchyma may be a means of disseminating the infection through the lung tissue. A considerable period of time may be necessary before fluid (isotonic salt solution) introduced into the alveoli of the lung is entirely absorbed. After eighteen hours, much has disappeared, and within four days it has been absorbed without a trace. Inert foreign material can be washed out by the method of intratracheal pulmonary irrigation; but even after prolonged treatment of this kind, in which many liters of irrigating fluid are employed, there is still a residue of the original material introduced. A nonlethal dose of virulent pneumococci introduced into the lungs of rabbits, followed by irrigation, resulted in a very diffuse and fulminating lobar consolidation. Irrigation with salt solution not only cannot be utilized to advantage, but is actually a disseminator and an aggravator of the inflammatory process within the lung.

Even though histologic studies of the distribution of aspirated fluids containing particulate matter were not available, roentgenologic studies in experimental animals have been recorded. In 1917 Waters, Bayne-Jones and Rowntree[15] forcibly injected into the trachea of dogs a 10 per cent. suspension of iodoform in olive

9. Permar, H. H.: An Experimental Study of the Mononuclear Phagocytes of the Lung, J. M. Res. **42**: 9 (Sept.) 1920, and The Development of the Mononuclear Phagocyte of the Lung, ibid. **42**: 147 (Nov.-Jan.) 1920-1921.

10. Gardner, L. U.: The Relatively Early Lesions in Experimental Pneumoconiosis Produced by Granite Inhalation and Their Influence on Pulmonary Tuberculosis, Am. Rev. Tuberc. **4**: 734 (Dec.) 1920. Willis, H. S.: Studies on Tuberculous Infection, Spontaneous Pneumoconiosis in Guinea-Pigs, Am. Rev. Tuberc. **5**: 189 (May) 1921.

11. Corper, H. J., and Enright, J. J.: The Eye as a Portal of Infection in Respiratory Diseases, J. A. M. A. **74**: 521 (Feb. 21) 1920.

12. Bloomfield, A. L.: Am. Rev. Tuberc. **5**: 903, 1922; Bull. Johns Hopkins Hosp. **33**: 145, 1922.

13. Mullin, W. V., and Ryder, C. T.: Am. Rev. Tuberc. **4**: 683 (Nov.) 1920.

14. Winternitz, M. C., and Smith, G. H.: Contributions to Medical and Biological Research, Osler Memorial **2**: 1255, 1919.

15. Waters, C. A.; Bayne-Jones, S., and Rowntree, L. G.: Roentgenography of the Lungs, Arch Int. Med. **19**: 538 (April) 1917

oil, under ether anesthesia with the animal lying on its abdomen. Dissection showed the material apparently in the same degree of suspension in the bronchi, bronchioles and smallest air passages. Microsections showed large masses of fat filling the alveoli. The position of the catheter in the trachea determined somewhat the distribution of the fluid. The plates revealed that the bronchioles of the upper lobes and the alveoli of the apexes were filled when the injection was made into the lower third of the trachea. The mixture produced a proliferative broncho-pneumonia.

In view of the belief of Klotz and his coworkers that carbon enters the lung parenchyma only through the alveoli, it seems well to call attention to the fact that bacteria may act slightly differently at times, since Winternitz, Smith and Robinson [16] have found that pneumococci can enter the tracheal lymphatics through a damaged epithelium and spread by way of the lymphatics to the lung. The lymphatics of the submucosa of the trachea afford a direct pathway of infection to the lung. The submucosa of the trachea contains a rich plexus of lymphatics, prominent everywhere and devoid of valves. Although this lymphatic system provides a pathway for infection, it may also serve as a protective mechanism against pulmonary infection; for the drainage of the submucosa of the trachea and bronchi is largely diverted as the lung is approached to the protecting regional lymph glands. They divide the pneumonias into two groups: those secondary to damage of the protective mechanism of the upper respiratory tract, and those in which such damage was not demonstrable. No explanation has been suggested for the latter, except that the pathway of the microorganisms was through the lumen of the trachea and bronchi.

Realizing that there were certain gaps in the steps by which inhaled dry or aspirated liquid particulate matter reached the lung parenchyma, information which might eventually suggest a means of applying therapeutic agents to the lung, experiments were undertaken to follow if possible the immediate result of the inhalation of soot, and inspiration or aspiration of India ink (fluid). Regarding the inhalation of soot for either short or long periods of time, microscopic examination revealed that it was rather irregularly deposited in the air passages, and that marked accumulations occurred, especially on the elevations or projections seen at the bifurcations of the smaller and larger divisions of the respiratory passages. In distinction to this, the alveoli were comparatively free from the inhaled crabon particles. Its final deposition around miliary tubercles also occurred irregularly, some being surrounded with heavy deposits of carbon and others being fairly free from such deposits; so that an inhalation therapy with particulate matter suspended in the respired air would not at present seem feasible in pulmonary tuberculosis.

Liquids inspired or aspirated into the lung showed an entirely different histologic distribution, the tendency being toward an immediate aspiration into the alveoli, where the particulate matter was retained for a comparatively long time. If deposit was retained in the bronchi and bronchioles, this would be found lying along the walls, and not accumulated at the bifurcations, and on projections seen histologically as noted with the dry inhaled smoke or soot. While inhaled soot appeared macroscopically to be fairly uniformly disseminated throughout the entire lungs although irregularly as to the finer histologic distribution, inspired or aspirated fluid (India ink) was more patchy in its localization, which, however, conformed to certain definite laws dependent on the posture of the animal at the time of inspiration of the fluid. In rabbits in the horizontal posture, with head slightly elevated, repeated nasal instillations of small amounts of India ink, from 1 to 3 c.c., failed to enter the trachea or lungs. When, however, the animals were held in the vertical posture and the ink dropped into the nose, even after one instillation it was visible in the lungs, usually being confined to the lower lobes. Under ether anesthesia, with the rabbit in the horizontal posture and the head slightly elevated, an instillation of India ink would readily enter the lungs; but the distribution differed from that seen in the vertical posture in that the greater part was confined to the upper lobes. The distribution was also dependent on the side on which the rabbit was lying during the instillation. If the animal lay on the right side, the ink was confined mainly to the right upper lobe; if on the left side, to the left upper lobe.

The postural distribution was also borne out in dogs, although access to the lung was more difficult without anesthesia in that it required an immediate administration of rather large amounts of India ink (from 10 to 20 c.c.) to attain results in the vertical posture, and then only relatively small amounts were inspired into the lungs, mostly into the lower lobes. With the animal under ether anesthesia, however, and in the horizontal posture, aspiration was easily accomplished, the ink being confined mostly to the upper lobes and to the side on which the animal was lying. These results were also repeated in the main in an artificial imitation of the chest, in which a fresh rabbit lung was suspended in a large wide mouthed bottle, the trachea connected with a dropping funnel containing India ink. Through a second hole entering the stopper of the bottle, a glass tube was connected with a suction pump to produce the inspiratory negative pressure occurring in the pleural spaces. The bottle could be laid in any position to imitate the various postures of the animal. From these experiments it seems highly probable that the disposition of the inspired fluid is dependent entirely on a mechanical mechanism, gravity and inspiratory suction. A study of sections from the lungs of animals permitted to aspirate India ink also indicates that the solid particles of the ink which had reached the alveoli were to a great extent retained in them even after three months. In one animal that had inspired India ink from the nose eleven days prior to section, a typical lung abscess was found in the posterior portion of the lung even though the animal was not ill.

By utilizing the information gained from the experiments with India ink, typical upper lobe pulmonary tuberculosis was produced in dogs by instilling heavy suspensions of dead human and bovine tubercle bacilli in saline solution into the nose, with the head slightly elevated, while the animal was under ether anesthesia. Right or left side upper lobe involvement was produced at will by merely placing the animal on the right or left side during the nasal instillation. The tuberculous involvement resembled the typical upper lobe type found in man, except that cavitation did not occur with the dead bacilli. Typical fibrotic pleural and interlobar adhesions were found, and histologically the tissues presented the typical granulation tissues of tuberculosis, with necrosis evident in locations.

16. Winternitz, M. C., Smith, G. H., and Robinson, E. S.: Bull. Johns Hopkins Hosp. **31**: 63 (March) 1920.

These experiments are significant in that they throw light on the importance of posture during anesthesia, especially in avoiding the quick and ready access of infectious material which is aspirated from the upper air passages to the finest divisions of the lungs, the alveoli, which act in the manner of traps, where it may be retained for a long time, to cause subsequent tissue changes. If we are to accept the more recent conclusions on lung abscess, which indicate that direct aspiration is the more important mode of infection, and this seems to be the trend of the times, it behooves the surgeon and anesthetist to improve by consideration of posture the means and methods of administering anesthetics, especially in operations on the upper respiratory tract. Moore [17] calls attention to the danger of the semirecumbent and upright positions during anesthesia, which the foregoing studies bear out.

The experiments also seem to indicate that the present mode of treating pulmonary hemorrhage can be placed on a more scientific basis by consideration of posture as a factor in promoting hemostasis in the bleeding lung; not to mention that there is a possible connection between posture and the intrapulmonary dissemination in the open ulcerative type of tuberculosis. Although dead tubercle bacilli have been used, for obvious reasons, in the experiments cited, and a nonprogressive pulmonary tuberculosis, confined mainly to the upper lobes, resembling that seen in man, was produced, it seems justifiable to infer that, by using living virulent bacilli in the same manner and with proper safeguard for the worker, the disease can be reproduced in dogs and other animals, presenting all the clinical characteristics of pulmonary tuberculosis in man, with massive acute pneumonic consolidation or ulceration and cavity formation suitable for all types of experimental therapy, surgical and medicinal. Further studies on the aspiration of fluids both from extra and from intrapulmonary sources may also elucidate the many vague conceptions as to the mode and spread of intrathoracic diseases.[18]

SUMMARY

The immediate intrapulmonary distribution of inhaled particulate matter (smoke or soot) differs from that of the inspiration or aspiration of particulate matter suspended in fluids (India ink). The former is found heaped up at the points of bifurcation of the air passages or on any prominent projections, as seen in the histologic sections, with relatively little being retained in the alveoli; while the inspired fluid quickly reaches the alveoli, where the insoluble particles of it are retained for a comparatively long time by the trap-like action of these terminal air vesicles. While the inhaled particles are fairly uniformly distributed throughout the entire lung, the inspired or aspirated fluid is irregularly distributed, and its location is determined to a great extent by posture. The pulmonary inspiration or aspiration of fluids after nose instillation occurs readily in dogs and rabbits under ether anesthesia, and in the horizontal posture with the head slightly elevated. The inspired fluid is confined to the upper lobes of the lungs and to the side on which the animal lay, while without anesthetic, repeated nose instillations are usually unsuccessful in this posture. In the vertical posture, however, the inspiration of fluids into the lungs is easily attained in rabbits, but less so in dogs, without anesthetic, the fluid being found mainly in the lower lobes. The postural distribution can be imitated in an artificial chest, indicating that it is determined by mechanical means, gravity and inspiration or aspiration. By utilizing the postural data, right or left side upper lobe pulmonary tuberculosis, possessing many of the characteristics of the disease in man as to location, the formation of pleural adhesions, tissue granulation and necrosis, can be reproduced in dogs, by the nasal instillation of suspensions of tubercle bacilli while the animal is under ether anesthesia and lying on the right or the left side during the operation.

3800 East Colfax Avenue.

17. Moore, W. F.: Pulmonary Abscess: An Analysis of Two Hundred and Two Cases Following Operative Work About the Respiratory Passages, J. A. M. A. **78**: 1279 (April 29) 1922.

18. The complete report of these experiments will appear elsewhere.

MULTIPLE STAGE MEASURES IN THE SURGERY OF SEVERE HYPERTHYROIDISM *

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We have reported elsewhere,[1] in a review of our last year's work (1921), a mortality rate of 1.17 per cent.—four deaths in 342 thyroid operations performed during that year. Of the four, two were thyroid deaths—one following the ligation of but one superior thyroid pole, and one following a hemithyroidectomy. The latter patient, it is to be noted, had an auricular fibrillation and a history of decompensation. We had previously ligated one of her poles, and the other half of the thyroid had been removed by another surgeon some years before. Of the other two deaths, one was from pneumonia and one an unexplained death on the table in a patient with nontoxic goiter operated on under ether in the students' clinic. Therefore, purely for the purpose of self-criticism, we may say that the first two were avoidable deaths.

We say "avoidable" because it is our opinion that the available surgical measures can be so graded from the measures which almost any patient, no matter how toxic, can endure up to the complete operation; furthermore, because by means of even the most minor of these measures it is in most instances possible by their repeated application to improve the condition so much that the patient may be carried into a more favorable phase, in which a more extensive and likewise more effective procedure may be made use of, until, step by step, removal of four fifths or more of the entire thyroid has been accomplished.

While we admit, of course, that there are hopelessly toxic cases in which death is imminent and practically certain, when no active measure is applicable, yet with the plan we have made use of, we feel that when a purely thyroid death occurs in a case considered within the bounds of operability, it will be the result of misjudgment and of consequent attempts to apply too advanced surgical steps as the first measure of treatment, or to progress too rapidly in the successive surgical steps. For this reason, therefore, we criticize ourselves for the two deaths spoken of.

The available surgical measures in our clinic have been graded and grouped in order of magnitude as:

* The plan here described represents that employed by Dr. Frank H. Lahey and his associates at the Thyroid Clinic, New England Deaconess Hospital, Boston.

1. Lahey, F. H.: A Review of a Year's Thyroid Work, Boston M. & S. J. **186**: 563-568 (April 27) 1922.

boiling water injection, single superior pole ligation, double superior pole ligation, single inferior artery ligation, double inferior artery ligation, hemithyroidectomy, and complete partial thyroidectomy. Either of the later procedures may be preceded by raising of the skin flap, and control of the bleeding—a procedure which distinctly lessens the time of the operation on the thyroid and divides the burden which the organism must bear.

The mortality of thyroid operations of several years ago was of such a high rate as to impress itself so deeply on the minds not only of the laity but also of the medical profession that even today many hesitate to submit themselves or their patients to operative procedures.

It has therefore been the aim not only of our own but also of every other organized thyroid clinic to bring the mortality rate down to its very lowest possibility. We felt that this could be accomplished partly by improvement in the technic of the operation. This, no doubt, was true; but we soon found that after we had performed a few hundred thyroid operations, the operative procedures became well organized, and yet the mortality of the operation remained a definite affair.

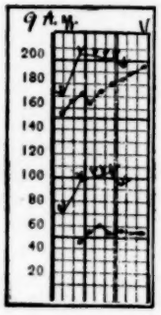

Chart 1.—Anesthetist's chart, showing progressively rising pulse rate during operation. This operation was stopped when a hemithyroidectomy had been completed. The removal of the remaining lobe in the face of this rising pulse would have been an undue risk. The remaining lobe will be removed in about two months.

We felt also that improvement in judgment based on an extensive thyroid experience played a very important part in the control of the mortality rate in these cases, and in this impression we have not been disappointed. We still believe that the clinical interpretation of the patient's condition, intoxication, and ability to withstand operative procedures is best based on a personal summing up of the patient, correlated with the laboratory data available with the case and personal observation of the individual. We believe that judgment based on an extensive operative thyroid background is the most essential feature in controlling mortality.

PROCEDURE IN VARIOUS DEGREES OF TOXICITY

This conclusion being reached, however, we wished to formulate measures of various grades to apply to cases of different degrees of toxicity, and have therefore devised and use a plan, modified as each case required in order to meet what were considered the needs of that case, having in mind always that when any doubt existed concerning the ability of the patient to endure the selected step, not that step but the next step below it would be applied.

Taking as an example, then, the most toxic type of patient coming to the clinic, the following procedures are, if necessary, employed:

The patient is placed in the hospital for a period of observation to decide whether or not she shall be rejected entirely as too ill for any surgical measure. It has been our experience that any patient who is able to get to the clinic will not be so toxic that rejection will be necessary. We have rejected no patients during the past year, and but few in our entire experience with thyroid cases.

Having decided that the patient is too toxic for even ligation of one superior pole, an injection of boiling water is made in bed or in the operating room, and this procedure repeated until such improvement has been accomplished that one of the superior thyroid poles may be ligated. We have had, in years past, an aversion to boiling water injections, engendered perhaps by the difficulty encountered in the removal of the thyroid later—a difficulty which is real, as will be attested by all surgeons who have had experience in performing partial thyroidectomy on thyroids into which injections of boiling water have previously been made. It is one, however, which we have found by no means insurmountable. We have made use of this measure only as a preliminary, to step the patient up to more effective and more surgical procedures. We feel, however, that it has a distinct place in the extremely toxic cases. It has also been of value to us in a group of cases in which all four thyroid poles have been tied at other clinics, where this is deemed a complete surgical procedure, and in which cases a return of intensely toxic symptoms has occurred. In such cases no preliminary measures other than the boiling water injection are available.

If, now, we have a patient, previously injected, who is at a stage in the disease at which one is in doubt as to whether or not single superior pole ligation will be endured, it is our custom to prepare the patients for operation, using scopolamin, $\frac{1}{200}$ grain, and morphin, from $\frac{1}{4}$ to $\frac{1}{6}$ grain, two hours and one hour before operation, and then take them to the operating room and anesthetize them with gas-oxygen for a few moments, during which time the rate and character of the pulse and the pulse pressure are observed. If the condition, in the anesthetist's (the same person anesthetizes all the patients) and in our opinion, warrants, a single superior pole is tied; if not, the patients are returned to bed and the degree of reaction to this procedure is noted. If the reaction is not excessive, they are taken once more to the operating room under the same conditions in a few days, the pole is tied, and they are again returned to bed and the degree of reaction is noted. If the reactions in either event have been alarming, we must again return to boiling water injections until a greater degree of improvement has been accomplished. If, on the other hand, the ligation is well borne, within a week or ten days the remaining superior pole may be ligated, and within a few days

TYPICAL BASAL METABOLIC DETERMINATIONS IN A CASE OF HYPERTHYROIDISM

Mrs. Jennie R., aged 56	Basal Metabolic Rate	Pulse Rate	Body Weight, Pounds
March 23, 1921	+46	104-134	87.1
March 24, 1921, double superior pole ligation			
April 15, 1921	+31	110-116	88
May 4, 1921	+24	100-114	88.5
May 5, 1921, partial thyroidectomy			
May 16, 1921	+15	100-106	86.75

the patient may be discharged from the hospital, returning when possible every two weeks for metabolism examination. When it is evident by the course of the weight gain, pulse fall, and metabolism drop that the optimal benefit has been obtained, or that, as sometimes happens, no marked improvement is to result, the patient is then reentered into the hospital for further surgical measures.

The weight, pulse and metabolism chart, together with the anesthetist's chart showing five-minute pulse, respiration and blood pressure recorded during the previous operative procedures, is reviewed, the patient

again taken to the operating room, and, on the basis of these data and the patient's immediate condition while on the table and under the anesthetic, a decision is reached as to what further surgical measure shall be applied. If the patient is deemed too toxic to permit even a hemithyroidectomy, then the right inferior thyroid artery is tied on the inner border of the scalenus anticus; if it is considered wise, the left inferior artery is also tied; if not, the patient is returned to bed, the reaction noted, and in a few days returned again to the operating room and the left artery tied. The patient is again sent home, if possible checked each two weeks by metabolism, and again returned to the hospital when it is apparent that the greatest degree of improvement has been accomplished.

In such an extreme case as this, for example, there will not only be accomplished the progressive improvement which accompanies the divided preliminary measures, but much information will have been accumulated of prognostic value regarding the operative tolerance of the patient. We have noted repeatedly that hyperthyroid patients who have to make several visits to the operating room acquire a psychic tolerance which is not entirely explained by the diminution in the toxicity of the disease.

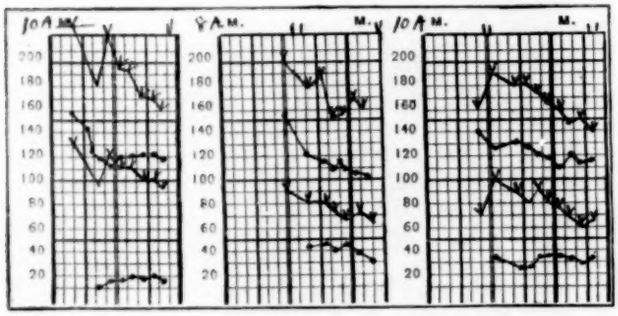

Chart 2.—Three anesthesia charts selected from a great many to illustrate the favorable drop in a case progressing safely during the operation. A great many, of course, either remain at the same level throughout the operation or rise slightly.

Valuable information as to the postoperative thyroid reaction and, still further, the course and character of the pulse during each of the foregoing procedures, and the relation of the average rate during each progressive step to the preceding steps will be available, a gradually dropping pulse average with each step of the procedure being a favorable prognostic sign and a gradually rising one an unfavorable one, in our experience.

The four poles having been tied, there will be but few cases in which an operation directed toward removal of thyroid tissue cannot be undertaken. We have ligated all four poles into two, three and four stage procedures many times, and have never seen anything indicating parathyroid changes. We have never ligated all four vessels at one sitting.

The patient is taken to the operating room again, and if under anesthetic her condition does not contraindicate it, the skin flap for a complete thyroidectomy is turned up and the sternohyoid and sternothyroid muscles on only one side are cut, exposing one half of the gland. This is done in order that we may stop if it seems desirable after a hemithyroidectomy, sending the patient back to bed and having her back for removal of the remaining half several days later, or several weeks later, when she has made sufficient gain to justify it. As stated earlier in the paper, any of the thyroidectomies, hemi or partial, may be preceded by raising of the skin flap. If this is decided on, we prefer to resuture the skin edges with wound clips, as in our experience this flap can readily be raised without bleeding at any time up to two weeks and the wound edges resutured, with a little undercutting and refreshening. We wish particularly to emphasize the advantage in our clinic of this exposure of but half of the gland, as it makes the removal of the second half at a later operation very much easier, leaving, as it does, the remaining lobe free from adhesions, and permitting an easy, rapid and relatively bloodless removal at a later date. If, after the hemithyroidectomy, it seems wise to proceed with the removal of the remaining lobe, the prethyroid muscles over the remaining lobe may at once be cut and the complete operation proceeded with.

One inexperienced with reopened thyroid incisions either early (from seven days to two weeks) or late (several months), might anticipate difficulties with secondary exposure or the production of a poor scar. Such has not been our experience. We have repeatedly reopened thyroid incisions while still in the stage of healing in which the wound appeared to be filled with small spots of slough, have removed the remaining lobes, sutured the skin, drained with flat rubber dam, and obtained very satisfactory scars. We have carried out the same procedure at later dates when healing was complete in a similar way, except that we have excised the scar of the first operation carefully.

COMMENT

As one reads this seemingly endless list of procedures, it does not appear possible that any patient would possess the patience and fortitude to see it through from beginning to end. It must be remembered in this connection that the entire application of these graded measures is rarely necessary, a great majority of patients requiring at the most as a preliminary measure only ligation of the superior poles, and a great many being able to have the operation of partial thyroidectomy done at one sitting. In cases in which the entire procedure has been necessary, the intoxication of the patients has been of such severity that they have readily appreciated their illness and gladly cooperated in such conservative measures.

It is definitely our conviction that, for example, ligation of the inferior arteries or artery produces less reaction than hemithyroidectomy, and that the step from preliminary superior pole ligation to hemithyroidectomy or partial thyroidectomy is of such magnitude that it will necessitate greater risk in some cases than will result if inferior artery ligation be interposed between the two. We also feel very sure that partial thyroidectomy done in two stages of two hemithyroidectomies has played an extremely important part in helping us to diminish and maintain our mortality rate at a low level.

We realize that criticism of the above-described procedure as of unnecessary length, too complicated, hyperconservative, and so forth, is bound to arise. In answer to it, we reply that after a thousand thyroid operations, we feel that we can with practical certainty select the cases for operation so that deaths on the table do not occur, and that even when some error in judgment in this respect has occurred, our anesthetist, by means of his five-minute pulse, respiration and blood pressure chart will receive danger warning in sufficient time to permit the operation's being stopped and the patient returned to bed before a dangerous phase of the disease has appeared.

As to the postoperative reaction and possible death from it, we are by no means as optimistic. It has been our experience that it is possible for patients to go through any of the surgical procedures on the thyroid, leave the table in good condition, and die within a period of from four to forty-eight hours. The two deaths in this year's series, spoken of in the introductory paragraphs, were of this type. Because of our inability to prophesy what the degree of reaction will be, and because we feel that a considerable percentage of our present mortality results from this, and also because we feel that increased operative tolerance and prognostic data can be obtained in no other way, we have made use of and advocate these multiple stage procedures.

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MILK INGESTION IN RELATION TO CHANGES IN BODY WEIGHT OF NEW-BORN INFANTS *

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For the new-born infant, a supply of mother's milk sufficient to meet its nutritional requirements is of the greatest importance. The question has been studied by many investigators, including Krueger,[1] Ssnitkin,[2] Camerer,[3] Dencke,[4] Haehner,[5] Hillebrand,[6] Tuley,[7] Feer,[8] Landois,[9] Jaschke,[10] Ramsey and Alley,[11] Scammon and Doyle,[12] Kirstein[13] and Pestalozza.[14] The question, however, was considered of sufficient importance to justify further investigation, particularly with respect to the amount of mother's milk obtained during the first ten days of life by infants receiving only five nursings every twenty-four hours. Fortunately, the series of babies studied by Ramsey and Alley, and by Scammon and Doyle likewise received five nursings in twenty-four hours; thus, our results are directly comparable with those obtained by these investigators. The series studied by the former investigators, however, included babies of mothers cared for by a charity hospital, whereas our records were compiled from economically independent individuals confined as private patients at the Swedish Hospital, Minneapolis. No attempt is made in the present study to establish any claims for the superiority of the four hour feeding schedule, as compared either with shorter or with longer intervals between nursings. We may state, however, that the results obtained by permitting new-born infants to nurse every four hours, omitting the 2 a. m. feeding, were very satisfactory, and much may be said in favor of this feeding schedule.

MATERIAL AND METHODS

The present paper includes a study of the changes occurring in body weight, and also of the amount of breast milk obtained at each nursing during the first ten days of life for 298 infants (149 first born and 149 later born infants) weighing between 2,500 and 5,000 gm. at birth (Tables 1 and 2). Throughout this study the date of birth was considered as the first day of life, regardless of the hour at which the child was born. The average length of the first day, consequently, was considerably less than twenty-four hours.

For each infant the naked body weight was recorded immediately following birth, and thereafter daily before the 10 a. m. feeding. According to the routine nursery care as established at the Swedish Hospital, Minneapolis, starting from six to ten hours after birth the babies were permitted to nurse for twenty minutes every four hours from 6 a. m. to 10 p. m. inclusive, making a total of five feedings each twenty-four hours. As a rule, only one breast was nursed at each feeding. However, in a few instances in which the supply of breast milk was low, the babies were given the two breasts at each feeding. The amount of mother's milk obtained at each feeding was determined by weighing the infants before and after nursing on balance scales accurate to 5 gm. In addition to breast milk, the babies received 10 per cent. lactose solution ad libitum up to 60 c.c. after each nursing during the first five days postpartum. The average amount of lactose solution taken per feeding, and also the total fluid ingested is recorded in Table 2.

TABLE 1.—AVERAGE DAILY BODY WEIGHT (GRAMS) OF FIRST BORN AND LATER BORN INFANTS (SEXES COMBINED)

	Day									
	1st	2d	3d	4th	5th	6th	7th	8th	9th	10th
First born	(149)*	(127)	(135)	(141)	(142)	(144)	(136)	(140)	(138)	(128)
infants	3,310	3,193	3,098	3,044	3,124	3,151	3,182	3,192	3,224	3,239
Later born	(149)	(123)	(141)	(135)	(134)	(141)	(134)	(132)	(129)	(120)
infants	3,502	3,375	3,315	3,258	3,324	3,354	3,383	3,398	3,403	3,409

* Number of cases in parentheses.

CHANGES IN BODY WEIGHT

The average birth weight of the 149 first born infants weighing between 2,500 and 5,000 gm. (sexes combined) was 3,310 gm. (Table 1). By the fourth day the weight reached a minimum of 3,044 gm., the average loss amounting to 266 gm. During this time, however, the daily decrease in weight was not uniform. On the second day, 44 per cent. of the loss (117 gm.) occurred, whereas on the third aand fourth days the decrease became progressively less, amounting to 95 and 54 gm., respectively. The total loss for the first born infants formed approximately 8 per cent. of the

* Read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

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initial average body weight. Following the fourth day postpartum, the average body weight progressively increased, reaching 3,230 gm. by the tenth day, a gain of 186 gm. The greatest daily increase in weight (80 gm.) occurred on the fifth day. Thereafter the daily gain in weight was somewhat irregular, but definitely less than that occurring on the fifth day.

TABLE 2.—AMOUNT OF BREAST MILK, TEN PER CENT LACTOSE SOLUTION, AND TOTAL FLUID INGESTION PER FEEDING FOR FIRST BORN AND LATER BORN INFANTS DURING THE FIRST TEN DAYS OF LIFE

Day of Age	Average Amount of Breast Milk per Feeding: Males First Born	Females First Born	Males Later Born	Females Later Born	Average Amount of Breast Milk per Feeding (Sexes Combined): First Born	Later Born	Average Amount of 10 per Cent. Lactose Solution per Feeding: First Born	Later Born	Total Fluid Ingested per Feeding (Sexes Combined): First Born	Later Born
1	.....	.....	.....	.....	.....	.....	18.5	17.5	18.5	17.5
2	(84)*	(69)	(82)	(86)	(153)	(168)				
	12.2	13.9	17.3	16.7	13.0	16.9	28.1	29.3	41.1	46.2
3	(254)	(254)	(294)	(246)	(508)	(540)				
	24.4	23.5	26.4	25.0	24.1	25.7	26.5	27.1	50.6	52.8
4	(398)	(344)	(389)	(330)	(742)	(719)				
	39.7	40.7	46.5	45.3	40.2	46.0	21.0	18.0	61.2	64.0
5	(414)	(357)	(396)	(337)	(771)	(733)				
	54.2	55.6	60.8	58.9	54.9	59.4	18.3	15.6	73.2	75.0
6	(416)	(363)	(400)	(334)	(779)	(734)				
	62.0	62.5	69.7	67.3	62.2	68.6				
7	(414)	(364)	(398)	(338)	(778)	(736)				
	66.6	67.7	72.8	74.5	67.3	73.6				
8	(407)	(359)	(378)	(333)	(766)	(711)				
	73.7	72.4	77.1	77.0	73.1	77.0				
9	(353)	(356)	(378)	(306)	(709)	(684)				
	77.9	75.5	78.5	82.8	76.8	80.5				
10	(323)	(316)	(291)	(238)	(649)	(529)				
	77.6	79.3	85.0	84.2	78.4	84.7				

* Number of feedings in parentheses.

The average weight of the later born infants (sexes combined) was 3,502 gm. (Table 1), or 192 gm. more than the average for the infants of primiparous mothers. As with the first born babies, the minimal weight for the later born infants likewise occurred on the fourth day postpartum; the decrease during this period amounted to 244 gm., whereas with the former the average loss in weight amounted to 266 gm. The greatest average loss (127 gm.) occurred on the second day. On the two succeeding days, the decrease in weight became progressively less, amounting to 60 and 57 gm., respectively. Following the fourth day postpartum, the weight progressively increased, reaching an average of 3,409 gm. on the tenth day. The total

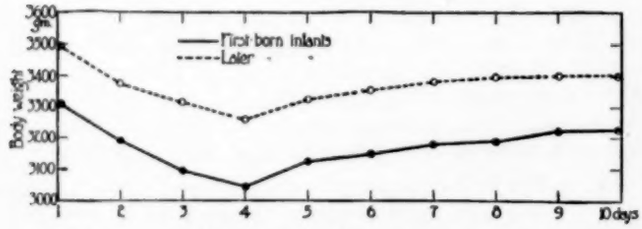

Chart 1.—Average daily body weight of first and later born infants.

gain in weight averaged 151 gm., or 35 gm. less than the gain recorded for the first born infants during a similar period. The increase in weight for the later born infants occurred irregularly, the greatest gain taking place on the fifth day. Thereafter, the daily increase was definitely less, in general showing a progressive decrease from the sixth to the tenth day, inclusive. At this time the weight for the babies of multiparous mothers was still 2.6 per cent. (93 gm.) below the average birth weight, whereas with the first born infants the weight on the tenth day was 2.4 per cent. (80 gm.) below the initial average weight.

AMOUNT OF BREAST MILK INGESTED PER FEEDING

The amount of mother's milk obtained per feeding by the first born and by the later born infants (sexes separated, Table 2) increased rapidly from the second to the fifth day, inclusive. On the following days the daily increase continued, but much less rapidly than earlier. In comparing the two sexes for each group there is apparently no distinct sexual difference with respect to the amount of mother's milk ingested. The averages, however, show that at corresponding ages the babies of multiparous mothers consistently obtained larger feedings than first born infants. Since no distinct sexual difference exists with respect to the amount of milk which babies receive from the breast during the first ten days of life, the data for the two sexes in each group were combined (Table 2). For the first

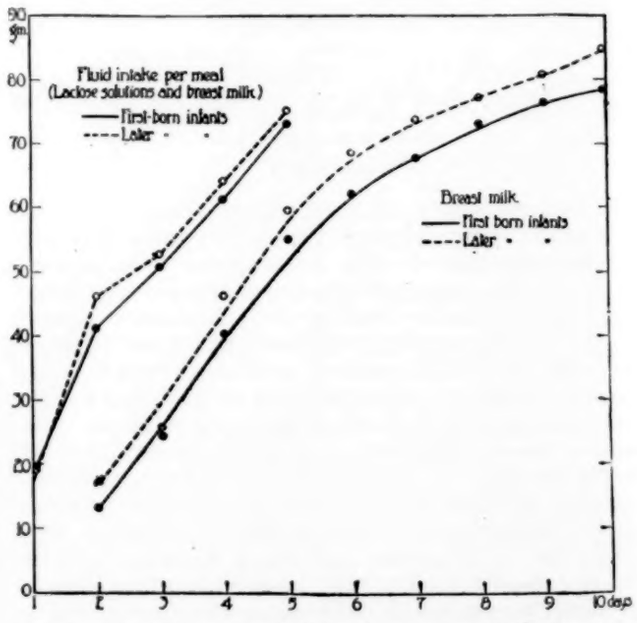

Chart 2.—At left, average fluid intake per meal (including lactose solution and breast milk) for the first five days; at right, average intake of breast milk per meal for each of the first ten days.

born infants (sexes combined), the amount of breast milk obtained shows a rapid increase from an average of 13.0 gm. per feeding on the second day to 54.9 gm. on the fifth day. From the sixth to the tenth day, inclusive, the increase continued, although less rapidly than earlier, the average feeding on the tenth day amounting to 78.4 gm. With the later born infants (sexes combined), the average amount of breast milk per feeding increased from 16.9 gm. on the second day to 59.4 gm. by the fifth day. On the tenth day, the food intake averaged 84.7 gm. per feeding.

The increasing supply of mother's milk for each group of infants is represented graphically by curves (as smoothed by means of graphic interpolation) in Chart 2. The curves (based on averages of 5,855 and 5,554 individual feedings for the first born and later born infants, respectively) show clearly that at corresponding ages the babies of multiparous mothers obtain larger feedings on the average than first born infants obtain during the first ten days of life. The

curves also show a rapid increase in the amount of milk taken per feeding up to the fifth or sixth day postpartum, after which the rate of increase is relatively slower, as shown by the less abrupt ascent of the curves.

On considering the amount of milk obtained from the breast each nursing by the smaller infants as compared with larger infants, of both primiparas and multiparas, the latter are found to get a larger amount of milk than the former, particularly after lactation is fairly well established (Chart 3). Not only is this true, but (as shown by the curves in Chart 4) of each weight group the babies of multiparous mothers, on the whole, apparently receive more breast milk than first born infants of corresponding weight. These findings suggest that parity and also the size of the infant may have some influence on the amount of the breast milk the mother will supply to the infant. Greater stimulation of the breast by the more vigorous nursing of larger infants, however, may be a factor to be considered, particularly in relation to the larger amount of milk which heavier babies obtain on the average. Among other factors to be considered which might influence the amount of milk obtained from the breast might be mentioned the more favorable condition of the nipples of multiparous mothers, and also a greater functional capacity of the breasts of multiparous mothers. On determining the amount of breast milk obtained daily for each kilogram of body weight (Table 3), the average per unit of weight is slightly higher for the later born than for the first born infants except for the eighth and ninth days. Here, again, is evidence that multiparous mothers are capable of supplying somewhat larger amounts of milk to their infants than are primiparous mothers.

In addition to breast milk, the babies were given 10 per cent. lactose solution ad libitum up to 60 c.c. after each nursing during the first five days. The average amount of lactose solution taken per feeding during the first two days (Table 2) by the first born and later born infants increased from 18.5 and 17.5 c.c. to 28.1 and 29.3 c.c., respectively. On the following three days, as the milk supply increased, the amount of lactose solution taken per feeding became progressively less. Apparently there was little difference in the amounts of lactose solution taken during this period by the first born infants as compared with the later born.

The total fluid intake (Table 2), including the lactose solution and the breast milk, for the infants of primiparous mothers increased from 18.5 c.c. per feeding on the first day to 73.2 c.c. on the fifth day. With the later born infants the averages show an increase from 17.5 to 75.0 c.c. during this period. Exclusive of the first day, the total fluid ingested was slightly higher for the latter group of infants. The average total fluid intake on the fourth and fifth days for our series of cases does not differ greatly from the average for the maximal meal on these two days, as determined by Scammon and Doyle. On the first, second and third days, however, the total fluid ingested was considerably higher for our cases than the average maximal meals as determined by Scammon and Doyle for this period. The higher fluid intake during the first three days of life by infants receiving lactose solution ad libitum lends support to the suggestion of these authors that the averages for physiologic gastric capacity based on the average amount taken per feeding are criteria of the ability of the mother to supply food and of the ability of the infant to ingest it, rather than actual measures of the capacity of the stomach.

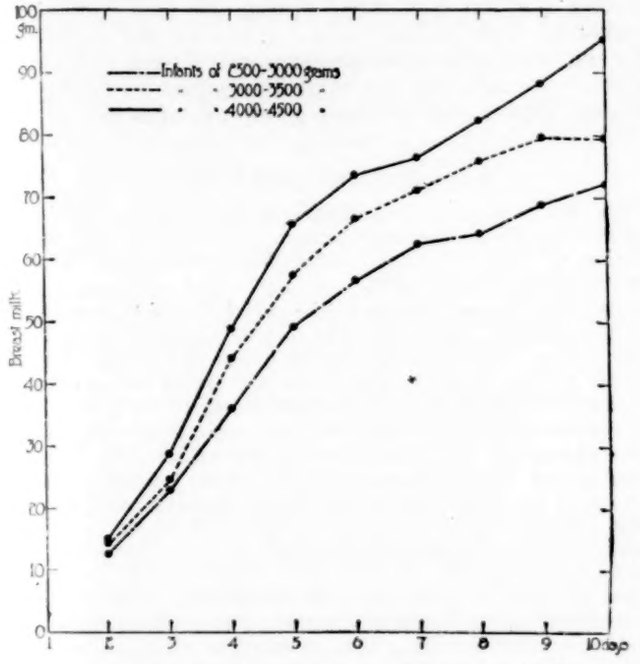

Chart 3.—Average ingestion of milk by all infants of different weight groups for each of the first ten days.

TABLE 3.—GRAMS OF BREAST MILK TAKEN DAILY PER KILOGRAM OF BODY WEIGHT

	Day									
	1st	2d	3d	4th	5th	6th	7th	8th	9th	10th
First born Infants ..	20.4	38.9	66.0	87.9	98.7	105.8	114.5	119.1	121.4	
Later born infants ..	25.0	41.8	70.6	89.4	102.3	108.8	113.3	118.3	124.2	

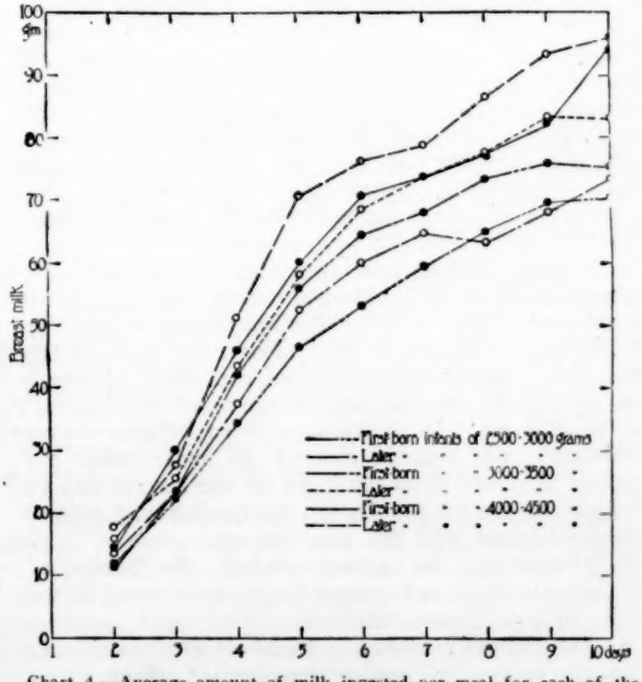

Chart 4.—Average amount of milk ingested per meal for each of the first ten days by infants of different weight groups, separated according to the parity of the mother.

CONCLUSIONS

Of previous studies of the amount of breast milk obtained during the first ten days after birth, the results of the present study probably can be compared most readily with those obtained by Ramsey and Alley and Scammon and Doyle. In these two investigations, the length of the period between nursings, and also the number of feedings daily, are identical with ours. In general, our findings agree closely with those obtained by Ramsey and Alley, and by Scammon and Doyle, particularly with those obtained by the latter. The essential difference noted is with respect to the amount of milk supplied by multiparous mothers as compared with primiparous mothers. Our data indicate that during the first ten days after birth later born infants obtain a larger amount of milk on the average at each feeding than first born infants. The observations reported by Scammon and Doyle were collected from patients delivered at the University Hospital, at which place multiparous mothers are admitted only in case of complications. Their series of cases consequently may have included a larger percentage of abnormal cases than occurred in our series, in which no such selection prevailed.

SUMMARY

1. The average body weight for 149 first born and also for 149 later born infants whose birth weights ranged between 2,500 and 5,000 gm. decreased to a minimum on the fourth day (the date of birth being considered as the first day). The average loss amounted to approximately 8 per cent. (266 gm.) of the birth weight for the first born infants, and to approximately 6.4 per cent, (244 gm.) of the initial weight for the later born infants. There was no progressively uniform daily decrease in weight; for each group the greatest loss occurred on the second day.

2. Following the fourth day, the average body weight for each group progressively increased. On the tenth day, however, the average weight of the first born and later born infants was still 2.4 and 2.6 per cent., respectively, below the initial weight. For each group of babies the greatest daily gain in weight occurred on the fifth day postpartum.

3. For the first born infants (sexes combined), the amount of breast milk obtained increased rapidly from an average of 13.0 gm. per feeding on the second day to 54.9 gm. on the fifth day. From the sixth to the tenth day, inclusive, the increase continued, although less rapidly, the average meal on the tenth day amounting to 78.4 gm. With the later born infants (sexes combined), the average amount of breast milk per feeding increased from 16.9 gm on the second day to 59.4 gm. by the fifth day. On the tenth day, the food intake averaged 84.7 gm. per feeding.

4. Throughout the period studied, the babies of multiparous mothers averaged larger feedings than the babies of primiparous mothers.

5. The heavier infants in general obtained more milk from the breast per feeding than lighter infants (first born and later born infants combined), particularly after lactation was well established. Furthermore, of each weight group the average meal in general was larger for the infants of multiparous mothers than for those of primiparous mothers.

6. Except for the eighth and ninth days, the average amount of mother's milk taken daily for each kilogram of body weight was slightly higher for later born than for the first born infants.

7. The average amount of 10 per cent. lactose solution taken per feeding increased to a maximum on the second day. On the following three days, as the supply of milk increased, the lactose solution ingested progressively decreased. Apparently there was no distinct difference in the amount of lactose solution taken during this period by the later born as compared with the first born babies.

8. The total fluid ingestion per meal (breast milk and lactose solution combined) during the first five days increased from 18.5 and 17.5 gm. to 73.2 and 75.0 gm. for the first and later born infants, respectively. Exclusive of the first day, the total fluid ingestion averaged slightly higher for the latter group of infants.

ABSTRACT OF DISCUSSION

DR. M. L. TURNER, Des Moines, Iowa: I am opposed to putting anything into the stomach of the new-born baby during the first two days, except the product of the mammary glands of the mother.

DR. ISAAC A. ABT, Chicago: The initial loss of body weight in the new-born is due primarily to a disproportion of intake and output. From one third to one fourth of this loss is due to the passage of meconium; from one eighth to one sixth to the excretion of urine; and in addition there is the loss due to evaporation of fluid from the body surface and the moisture of expired air. The figures given by Drs. Adair and Stewart on the percentage of the initial loss of weight amounted to 8 per cent. for the first born baby and 6.4 per cent. for later born babies. This conforms with my observations. The loss of weight in the first few days has come to be looked on as physiologic, and is called a normal process when the loss varies between 150 and 200 gm. This gives a percentage loss of weight of from 6 to 9 per cent. of the total body weight. Cases have been reported in which no loss in weight occurred, but these cases must be very rare. Those factors which influence the loss of weight, in general, are: 1. High birth weight, in which instances the loss is not only relatively but absolutely greater than the average. 2. The conduct and progress of labor. In cases of severe trauma there is increased loss of weight. Many of these babies are drowsy and refuse to nurse, and are grouped into the general class termed cerebral concussion or meningeal hemorrhage. 3. The time of tying the cord, which is believed by some to be a factor. Arguments have been advanced to show that when the cord is tied late the loss of weight is not so great as in those babies in whom the cord is tied early. 4. The greater loss of weight sustained by boys than by girls, because the average birth weight is higher in boys than in girls. 5. Icterus, which becomes a factor when it is persistent and when there is evidence of toxemia. The weight loss is greater in such severely jaundiced infants. 6. The most important factor which Dr. Adair and Dr. Stewart have brought out, that the amount of weight lost is directly proportional to the food supply. In general, it may be said of this that the infant who receives adequate food loses the minimum amount of weight, and babies of multiparous mothers, whose milk secretion is greater than that of primiparous mothers, lose less than first born babies. There can be no doubt that the initial loss of weight is less in babies whose feedings are begun on the first or second day. The food value of colostrum has not received much attention, but it is well recognized that the initial loss of weight is lessened in proportion to the amount received.

DR. C. A. STEWART, Minneapolis: In the present study we gave lactose solution as an experiment. It is a matter of common experience that, during the hot summer months particularly, many infants lose considerably in weight and frequently have a high fever from the second to the fourth or fifth day. This condition we felt was probably due, partly, to marked loss of body fluids and to a failure on the part of the baby to obtain a sufficient amount of milk from the breast to offset the loss of body fluids. The lactose solution was given during the first five days postpartum, until

the supply of mother's milk was well established, in an endeavor to counterbalance the loss of body fluids and in this manner to prevent the development of inanition fever, if possible. We wished also to keep the postpartum weight loss at a minimum. As a result of this study, we are of the opinion that the administration of 10 per cent. lactose solution during the first five days of the life of the infant reduces the frequency of the occurrence of inanition fever and may prevent excessive loss in body weight. We are certain that giving lactose solution to new-born infants is of definite value, and we also are confident that it does not interfere with nursing if the lactose solution is given after nursing.

EFFECT OF TONSILLECTOMY ON GENERAL HEALTH IN FIVE THOUSAND CHILDREN *

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ROCHESTER, N. Y.

Tonsillectomy has become a common operation. Great improvements have been made in this surgical procedure, and much has been written about the various phases of the operation. It is generally conceded that after the removal of tonsils a child should improve. Few reports in the literature deal with end-results except when such definite infections as endocarditis, rheumatism and chorea existed. An attempt has been made in this study to determine what effect the operation has on a group of so-called average cases that present themselves for operation in all communities. An unusual opportunity was offered for this study in a special clinic where approximately 10,000 children were operated on over a period of five months. By cooperation the five hospitals in the city decided to make it possible for any child in need of tonsillectomy to obtain such relief. An organization was established to discover the most urgent cases first. Fifty thousand schoolchildren were given a special examination. Only children who had obviously diseased tonsils and obstructive adenoids were recommended for operation. The selected patients were sent to the hospital, where a complete physical examination was made the day before operation. Particular attention was given to the child's nutrition, presence of glandular enlargement, ear defects and pulmonary defects. Roentgenologic studies of the chest were made in 2,000 cases. A final examination of the oral cavities was made by a laryngologist. When there was any difference of opinion on the part of the examining physicians as to the advisability of operating, the child was dismissed. From the parent was obtained a detailed history of the child, and special efforts were made to elicit the complaints noted by the parent. These were tabulated carefully, for it was felt that the success or failure of the operation would be largely judged by the change or removal of symptoms as would be noted by the parent.

The operations were performed by trained laryngologists, and only skilled anesthetists were employed. The child was safeguarded in every possible way. The operations were performed in the morning, and twenty-four hours later the children were sent home in automobiles with instructions to remain in bed for five days. No immediate follow-up examinations were made except in cases reported not doing well. From ten to twelve months after operation, the same group of children was reexamined to determine their physical status and to record the presence or absence of symptoms.

A preoperative diagnosis was made at the time of the final physical examinations. In order to determine what effect an operation has on an individual, it is essential to ascertain the reasons for operation. An analysis was made of the symptoms leading to this operation in 5,000 children. It was found that there were three groups into which most of the children could be placed.

Children who had definitely hypertrophied tonsils and who also presented clinical evidence of infection comprised the largest group. Seventy-three per cent. of the children could be considered members of this group. Relatively few children, 13.5 per cent., were found who had hypertrophied tonsils and adenoids without clinical evidence of infection. Twenty-two and five-tenths per cent. of the children had normal or only slightly enlarged tonsils but showed definite clinical evidence of infection. A small number, 1 per cent., were operated on who presented neither abnormal tonsils nor evidence of infection. An acceptable preoperative diagnosis was made in 99 per cent. of the 5,000 children.

TABLE 1.—CAUSES FOR OPERATION

Group	Number	Per Cent.
Children who had definitely hypertrophied tonsils with clinical evidence of infection	3,633	73
Children who had definitely hypertrophied tonsils without clinical evidence of infection	175	3.5
Children with tonsils of normal appearance but clinical evidence of infection	1,142	22.5
Children with tonsils of normal appearance and no clinical evidence of infection	50	1

Evidence of the infection was judged either by physical signs or by the symptomatology. Older children were able to describe their complaints, but the parents' or the school nurses' statement was taken for the younger ones. The tabulating of these complaints before and after operation furnished much of the information sought in this study.

TABLE 2.—COMPLAINTS PREVIOUS TO OPERATION

Symptoms	Number	Per Cent.
Mouth breather	3,587	72
Frequent sore throat	2,870	57
Frequent colds	2,309	46
Enlarged cervical glands	2,182	43
Ear trouble	1,131	22
Frequent attacks of fever	428	9
Joint pains or growing pains	200	4

Obstructive breathing was the most common complaint. Seventy-two per cent. of the children were mouth breathers. Fifty-seven per cent. of the 5,000 children gave a history of having frequent attacks of sore throat, while 46 per cent. were subject to frequent colds. Forty-three per cent., or nearly one-half, showed evidence of enlarged cervical glands, or gave a history of having swollen glands. Ear trouble was or had been present in 22 per cent. of the children. Joint pains or growing pains were complained of in only 4 per cent. of the children. No effort has been made in this study to tabulate the defects found in physical examination except those bearing some relation to tonsillar infection.

Postoperative complications did occur, though they were not frequent. Cognizance must be taken of them

* Read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

in the final determination of the effect of the operation on a group of children. There was no immediate operative mortality among the 10,000 children. Postoperative bleeding from raw surfaces was not uncommon but in no instance was there a failure in controlling it. A skilled operator was always in attendance, avoiding any delay in the attempt to check the bleeding. Febrile reactions frequently occurred, sometimes unexplained but usually due to a coincident respiratory infection. As these operations were performed during the winter months, respiratory infections were particularly looked for. Diphtheria developed in seven children after they had returned home. Three of these children died, as the disease was recognized late. Eight children developed pneumonia. One of the children died two weeks after operation. The incidence of diphtheria and pneumonia was high throughout the city during these months. Five children out of the 10,000 operated on developed a lung abscess. Four of these have apparently completely recovered, while one child is still in the hospital. Catarrhal and purulent otitis media was not an uncommon complication. In thirty children a purulent otitis media followed the operation. There was no mastoid involvement. One child developed a purulent meningitis, but fortunately recovered. About 2 per cent. of the children suffered a considerable loss in weight subsequent to the operation, but practically all regained this loss in a few weeks' time.

The reexamination of these children was undertaken about ten months after the operation. The children were directed to report with their parents at a central clinic, and were given an examination similar to the one previous to their operation. The reexamination was done in the winter so that the children might be seen under the same climatic conditions. It is not in the province of this paper to discuss the surgical result except so far as it bears on the child's general condition.

The effect of the operation on the child's symptoms was carefully noted. Tabulation was made of the

TABLE 3.—STATUS OF COMPLAINTS BEFORE AND AFTER OPERATION

Symptoms	Before Operation		One Year After Operation	
	Number	Per Cent.	Number	Per Cent.
Mouth breather	3,587	72	463	9
Frequent sore throat	2,870	57	272	5
Frequent colds	2,309	46	400	8
Enlarged cervical glands	2,182	43	2,100	42
Ear trouble	1,131	22	238	4
Frequent attacks of fever	428	8	51	1
Joint pains or growing pains	200	4	37	0.7

status of symptoms that existed before operation, and any new ones that had developed since. The child's physical examination was recorded, and all facts pertaining to the child were charted. The surgical result was carefully studied, but the opinion expressed in this study is based on all the factors and not on the surgical end-result.

The most striking relief came to the so-called mouth breather. Seventy-two per cent. of the 5,000 children gave symptoms of obstructive adenoids and tonsils. At the time of reexamination, only 9 per cent. had such a complaint. An analysis of the 9 per cent. revealed the fact that, in a number, small pieces of tonsillar tissue were left, or there was still evidence of unrelieved nasal obstruction; but in the majority the throat was pronounced clean. The failure to relieve this symptom existed chiefly in children aged 10 years or older. Undoubtedly the prolonged obstruction had accustomed the child to mouth breathing.

Frequent sore throat was a common complaint, being reported in 57 per cent. of the children at the time of operation. The same complaint was recorded in only 5 per cent. of the children a year later. Unquestionably, tonsillectomy affords great relief from this common complaint. However, tonsillectomy does not prevent sore throats, for 100, or 2 per cent., of the children who were free from sore throats before operation have had two or more attacks since their operation.

Frequent colds was given as a subjective complaint in 46 per cent. of the children before operation. This

TABLE 4.—NEW COMPLAINTS SINCE OPERATION

Complaints	Number	Per Cent.
Frequent colds	151	3.00
Frequent sore throat	100	2.00
Enlarged glands of neck	1,123	22.00
Frequent attacks of fever	41	0.90
Ear trouble	133	2.5
Joint pains	32	0.80
Headaches	40	0.90
Nervousness	45	0.95
Nosebleeds	50	1.00
Laryngitis, croup	60	1.10
Bronchitis	60	1.10

incidence was reduced to 8 per cent. There is, of course, considerable inaccuracy in this symptom, for the number of colds a child might have within a year would vary greatly. It was noted that 3 per cent. of the children who were not subject to frequent colds before the operation have been more susceptible since this procedure.

Enlargement of the glands of the neck, chiefly the anterior cervical, was present or had existed at some time previous to the operation in 43 per cent. of the children. More than half, 55 per cent., were free from such enlargement one year later. However, 22 per cent. of the children who had been free from this symptom before the operation showed definite glandular enlargement at the time of reexamination. Apparently, infection and absorption take place in the absence of tonsillar tissue. During the first year this complaint has not been successfully eliminated.

Ear trouble, including deafness and discharging ears, occurred in 22 per cent. of the children. The incidence of this complaint was reduced to 4 per cent. Since the operation, 133 children or somewhat more than 1 per cent., have developed ear trouble.

Frequent attacks of fever were noted in 8 per cent. of the children. Since the operation, only 1 per cent. have had such attacks.

Joint pains or growing pains had existed in 200 children, or 4 per cent. Since operation, such symptoms have occurred in only thirty-seven children.

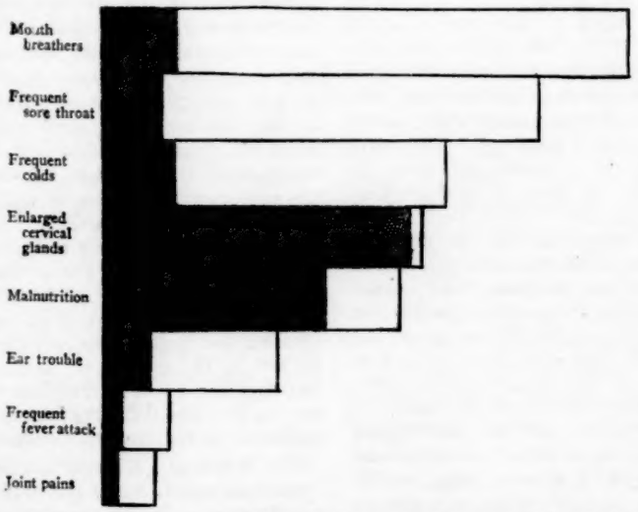
New complaints that have developed since the operation cannot be overlooked in endeavoring to obtain a fair estimate of the effect on the entire group. Twenty-five children complained of nosebleeds which had never existed before. Laryngitis and bronchitis were not uncommon in children who had not had such a complaint previous to the operation. Acute rheumatic fever developed in two children who had been operated on, and chorea in one child. Little can be said about the incidence of cardiac disease in such a short time after operation. A study of the incidence of cardiac disease, rheumatism and chorea is being made, but several years must elapse before any reliable

data can be collected in these 10,000 children who were operated on.

Does tonsillectomy assure any protection against the common infections? Nothing can be concluded in such a short period. It was noted, however, that diphtheria occurred in eighteen of the 5,000 operated cases while the incidence throughout the city during that time was nearly twice as high. Scarlet fever was reported in eleven out of 5,000 children when the incidence in the city was more than twice as great. Measles was reported in relatively few cases, as most of the children had developed this infection earlier. There was a high incidence of mumps, pertussis and chickenpox. It is very doubtful whether tonsillectomy lessens the incidence of the common infectious diseases.

The effect on the child's nutrition offers a good index as to the child's general condition. The estimation of the child's nutrition is based on the height-weight relationship. Weights and measurements were compared with the table of average weight and height measurements published by Dr. Emerson for the nutrition clinics for delicate children. Phenomenal gains after the operation are often mentioned in advocating this operation. Such was the case in this group. Many children gained from 10 to 20 pounds (4.5 to 9 kg.) during this year subsequent to operation; but, taken as a group, less favorable gains were reported.

At the time of operation there was a high percentage of malnutrition. Thirty-nine per cent. were 7 per cent. or more underweight; 61 per cent. were normal or overweight. One year later the number of malnourished children was reduced to 29 per cent., while the normal group reached 71 per cent. This represents a very decided improvement in the nutritional status of the group, but also shows that the unusual gains expected following this operation do not always occur if the big average is sought.



Symptomatic status of children before and after operation: shaded area, complaint one year after operation; white area, complaint before operation.

TABLE 5.—NUTRITIONAL STATUS OF CHILDREN

	At Time of Operation		One Year After Operation	
	Number	Per Cent.	Number	Per Cent.
Ten per cent. or more overweight	704	15	857	18
Normal weight	2,304	46	2,653	53
Seven per cent. or more underweight	1,992	39	1,490	29

A factor which cannot be overlooked is the parents' opinion of the child since the operation. An honest statement was sought from each parent. In their estimation, 4,240 children, 84 per cent., were definitely better, and 15 per cent. showed no change, while 1 per cent. were reported to be worse since the operation.

To determine the effect of the operation on a child, all the factors discussed must be taken into consideration. The relief of one symptom followed by a new symptom makes no real improvement. Failure to be relieved of all symptoms does not mean a failure of the operation.

It is generally conceded that remarkable improvements follow tonsillectomy in some cases. Will such an improvement be uniformly good in a large group of children? The factors which determine a child's improvement are mechanical relief from obstructive symptoms, freedom from subjective symptoms, gain in weight, a lessened incidence of sickness, and mental improvement. It will take several or more years to determine some of these facts; but at the end of one year definite results should be noted. Subsequent examination of these children may alter the results reported now, but a review of the reexaminations shows that mechanical relief from obstructive symptoms was obtained in 95 per cent. of the cases. Subjective symptoms were appreciably lessened except for the high incidence of cervical adenitis. There was a marked improvement in the nutrition of these children. The short period since operation prevents any positive statement concerning the incidence of sickness. According to the parents' statement there has been a lessened morbidity rate.

School records show a decided mental improvement in many of these children. Reports from the dental dispensary demonstrate a lessened incidence of malocclusion of teeth in these children.

CONCLUSIONS

1. Out of 10,000 children on whom tonsillectomy had been performed under uniform conditions, 5,000 have been reexamined one year after operation, and a detailed history of the child's complaints tabulated before and after operation.

2. Analysis of the causes for operation shows that obstructive symptoms or evidences of tonsillar infection existed in 99 per cent. of the cases.

3. In 5,000 children reexamined, the greatest improvement came to the group that showed evidence before operation of obstruction and infection. Obviously, a child suffering from obstructive tonsils and adenoids with symptoms of infection should have the benefit of tonsillectomy.

4. Considerable improvement in the child's general health was noted in the group that presented evidences of infection from the tonsil but in which the tonsil presented no marked hypertrophy. Undoubtedly this group showed benefit from this operation.

5. No marked change was found in the child's general condition in the group operated on for hypertrophy only. There was less malnutrition in this group. One year is too short a period to determine the benefits of the operation to this group.

6. Taken as a group, there was a very decided improvement in the general condition of the children operated on. The nutritional status was improved in many instances. The high percentage of undernour-

ished children one year after operation, 29 per cent., suggests that diseased tonsils are only a small factor in the production of malnutrition.

7. The operative risk is not great, for 10,000 children were operated on without a surgical fatality, and postoperative complications occurred in only a small percentage of the children, assuring reasonable safety if proper care is taken.

8. The ultimate effect of the operation on a child cannot be determined at the end of a year; but at that time 84 per cent. of the children were considered in better general health, as indicated by their physical examination and analysis of their complaints.

29 Buckingham Street.

ABSTRACT OF DISCUSSION

DR. JULIUS H. HESS, Chicago: Dr. Kaiser is to be congratulated on the excellent report of the results in his large series of cases, probably the largest series of cases that has been carefully studied. In the average run of cases that do not have the preceding careful physical examination, the expert anesthesia and the five days' rest in bed, the mortality must be much greater. We have reached the stage at which many men feel that it is almost the birthright of a child to have his tonsils removed. We have in our city a clinic much like the clinic in Rochester, N. Y. One of the men who has supported this clinic financially has felt that the poor children should have all the opportunities that his own children have had, and all of these children, except those under 2 years of age, have had their tonsils removed. The main thing is that these children should be properly protected. In most instances we see good results in cases of malnutrition and in cases of secondary anemia, but I think that in the cases of rheumatism and allied troubles, such as myositis and mild degrees of arthritis, and in endocarditis, chorea and nephritis, the results have not been so good. In fact, the group of cases which have given us the poorest results are the choreas. I think that in 50 cent. of the chorea cases, the children recover from that attack, but they have recurrent attacks six months or so later. In the endocarditis cases—and we are operating earlier in those cases—we are undoubtedly seeing considerable improvement; but no one should tell the parents that this is a panacea or even a cure for the attack when the valves are damaged. I want to make a plea along the lines of abscessed teeth, alveolar abscesses, sinusitis, pyelitis and possibly other infections, those of the intestinal tract as well, before deciding that the tonsils must come out.

DR. WILLIAM R. P. EMERSON, Boston: In Rochester, N. Y., there are forty nutrition classes. On this account I am especially interested in this tremendous undertaking of clearing up cases of diseased adenoids and tonsils. We found it of great help in our nutritional work because obstruction in the nasopharynx is one of the chief causes of malnutrition, occurring in about 60 per cent. of all cases. I want to call attention to the value of having the operation performed by experts, because many of our undernourished children have had incomplete operations, and focal infections have continued. Rest in bed for five days after the operation prevents the loss of weight. This should be the minimal time for recovery. It is important to remember that removing diseased tonsils does not always remove associated inflammation, and we are finding more and more sinus infection. A recent report shows that in a group of children under 10, eighteen out of thirty who had otitis media had antrum infection on the same side. These toxemias are one of the chief causes of the "no-appetite" cases. We must get rid of toxemia so that the child can absorb and gain.

DR. HARRY LOWENBURG, Philadelphia: Dr. Hess mentioned an extremely important point—the lack of the study of the condition of the teeth and accessory sinuses. Dr. Kaiser emphasized that glandular adenitis was more common after operation than before, and I wondered whether he took into consideration the possibility of extratonsillar infections as a cause for this. I believe there is need of propaganda to educate the dental profession, and the medical profession, to the necessity of serious attention to the dental organs. It is foolhardy to think that a child should not suffer from secondary infection simply because he has had his tonsils removed when the rest of his oral cavity is practically a sewer. We meet many of these cases in which it seems impossible to get the cooperation of the dental profession. When I have a tonsil case, I have a dentist present at the operation to remove deciduous teeth and others which may be involved. One other point brought out by Dr. Kaiser is of value, and that is the early and continuous study of these children before they are brought to operation. I had recently brought to my notice a child who was one of a group of seven or eight from a crippled children's home. These children were operated on by a very able man. This particular child was studied carefully. At 10 o'clock the morning after operation he was asked whether he wanted his breakfast, and he replied with much bravado "You bet I do," and at 11:30 he was in coma from acidosis. I do not believe that this child was studied from this standpoint.

DR. JOHN ZAHORSKY, St. Louis: I want to call attention to one or two points in which such studies may fall into error. First is the age of the child. The exact age at which these benefits occurred was not stated. There is quite a difference in the improvement following removal of tonsils in the young child and in an older child. The young child has not established an immunity to respiratory infections, and the older child has. It is magnificent to get a gain in weight in a child of 8 who has been suffering from infection of the tonsils. This gain is permanent; but in the young child the gain in weight frequently is not permanent. The other error is that when we examine the children we do not always state what time of the year it was. It is a common clinical finding that when we pass an influenzal infection we find many children infected and many with large tonsils and adenoids. Many of these conditions disappear when the summer approaches; so that in speaking of the relatively obstructed noses and the relative amount of obstructed sinuses, we must know whether this examination was conducted in the winter or summer, and whether it was conducted after an acute respiratory epidemic, as this evidently was in fact, but these operations should not be done during an epidemic of respiratory infections.

DR. ALBERT D. KAISER, Rochester, N. Y.: I would like to emphasize again that I am talking about the average case of tonsillectomy and of a group rather than of the individual. I think that when we talk of the results of tonsillectomy the physician usually talks about the cases he sees in his own experience, particularly the child that has made a phenomenal gain or has not done well. I have tried to give a fair estimate of 5,000 children operated on under uniform conditions. I think it represents the type of children operated on in our private work. It was the type of case in which no laryngologist would question the wisdom of operation. If we do these operations in private cases, why should we criticize doing them on poor people? In reply to Dr. Zahorsky, we felt that the incidence of respiratory diseases was an important factor, and we considered whether we should operate during summer or winter. For organization purposes it was deemed best to do all operations in the winter, but the reexamination was done in the same period of the year so as to have a fair comparison of the incidence of respiratory diseases at the time of operation and one year later. The high incidence of enlarged glands one year after operation was more or less of a surprise to us. Some of these children did show evidence of dental infection and antrum involvement; but since we have a large dental dispensary, nearly all of these children had to pass through the dental dispensary before operation, so that the dental defects were not a big factor in the causation of enlarged cervical glands. A study of the children with enlarged glands is being made, but I did not want to bring that into this paper. The preliminary examination of the child is very important. We feel that fewer postoperative complications developed because of the care taken in eliminating the bad surgical risk. During the period that 10,000

children were operated on in the clinic without an operative death, two children operated on in private homes died. Investigation revealed that these children were not given preliminary study. I think that the preliminary study is most important to safeguard our children. Particularly do I want to emphasize that this study represents the results obtained from a group of average cases.

A FEW OBSERVATIONS ON MALARIA IN INFANCY *

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Acute malaria presents a different clinical picture in infancy, and up to 3 years of age, from that seen in adult life. The younger the patient, the greater the difference. The variation in clinical manifestations is even more decided and misleading than the difference existing between rheumatism in the child and in the adult. If these variations are not recognized, these little patients frequently drift into malnutrition and marasmus, and occasionally death ensues.

DIFFERENCES BETWEEN MALARIA IN INFANTS AND THE DISEASE IN ADULTS

Our observations are based on three or four hundred private cases, and on fifty carefully studied cases in infants and children. They will be duly reported when larger numbers have been properly collected and studied. From present observations, we are led to believe that the following differences exist between malaria in infants and in adults:

Afebrile Malaria.—With a history of no preceding febrile onset, a fair number of babies, breast-fed, receiving plenty of breast milk, and with the blood showing malaria parasites, will show no fever, grow indifferent to nursing, stop gaining in weight, or lose slightly, and grow decidedly anemic. This condition may have existed for three or four weeks before medical advice is sought and the blood examined. Physical examination will result in absolutely negative findings in fully 30 per cent. of cases, with no enlargement of the spleen and nothing to guide one to diagnosis from the clinical picture except the marked anemia. These cases are often improperly diagnosed. Mothers attribute the condition to "teething." Physicians only too frequently think the breast milk is at fault, and change from breast milk to artificial feeding, with dire results. It is surprising how brilliant are the results when the proper dosage of quinin is given.

Periodicity and Fever.—The medical mind rightly believes periodicity in clinical manifestations to be the most characteristic feature in malaria. This is true of malaria in the adult, and in children after three years of age. In Georgia—and we believe the same applies to the South in general—periodicity in subjective and objective symptoms of malaria in infancy is oftener absent than present. The younger the patient, the less frequently is periodicity found.

Fever is remittent, irregularly intermittent or absent more frequently than regularly intermittent. This is not due to a preponderance of estivo-autumnal infection, but is seen in tertian infection. In and around Augusta, Ga., where our observations have been made, tertian infection predominates over estivo-autumnal in the ratio of about three to one.

Probably the explanation for absence of characteristic fever in infancy may be found in the blood picture of tertian infection in the infant. Here all stages of development in the tertian infection are seen, more often than in the adult. The forty-eight hour cycle of maturity of plasmodia in the infant's blood is probably not completed with the same regularity, or periodicity, as occurs in the adult. The host may account for the difference in cyclic development. Clinically, we know babies react differently from adults to infections of rheumatism, typhoid and pneumonia.

With the cycle of maturity more continuous or more irregular than periodic, remittent and irregularly intermittent rather than regularly intermittent, fever would be expected. The same frequent absence of chills, or its equivalent in babies (cold hands and feet, blue lips and nails, slight cyanosis or pallor, drowsiness or prostration) would somewhat substantiate this assumption.

Digestive Symptoms.—In infancy, gastric and intestinal disturbances are not uncommon symptoms in the early stages of malaria; vomiting in about 75 per cent., and mild diarrhea (sometimes ileocolitis) in 25 per cent. would be, we believe, a fair estimate. In general, it might be said that malaria is a great disturber of the normal functioning of the body of the infant and the very young child. If the child possesses latent tetany or a tendency to asthma or bronchitis, malaria will frequently excite these conditions to activity, and give a varied clinical picture.

Enlargement of Spleen.—In adults, a palpable spleen, under careful examination, is, in the early days of malaria, a rather constant finding. In infancy and up to 3 years of age, a palpable spleen is absent in fully 30 per cent. of cases in the first week of illness. In a goodly number, the spleen is not palpable throughout the entire malarial attack.

STANDARD TREATMENT OF MALARIA

The National Malaria Committee, with the Surgeon General of the U. S. Health Service as chairman, and Dr. H. W. Carter of the Public Health Service as secretary, adopted a standard treatment of malaria in 1919:

> For the acute attack, 10 grains of quinin sulphate by mouth, three times a day for a period of at least three or four days, to be followed by 10 grains every night before retiring, for a period of eight weeks. For infected persons, not having acute symptoms at the time, only eight weeks' treatment is required.
>
> The proportionate doses for children are: under 1 year, ½ grain; 1 year, 1 grain; 2 years, 2 grains; 3 and 4 years, 3 grains; 5, 6 and 7 years, 6 grains; 11, 12, 13 and 14 years, 8 grains; 15 years or older, 10 grains.

The standard treatment is recommended for the average case of malaria. It is not claimed that it is a perfect treatment, and applicable to all cases. The report of the committee on this point reads:

> It is not claimed that this is a perfect, or even the best, treatment in all cases, but it is our belief that it is a good and satisfactory method for practical use to prevent relapses and transmission to other people.

* Read before the Section on Diseases of Children at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

The standard treatment has two objects: 1. To stop the acute clinical manifestation of malaria by giving the prescribed standard dose three times daily for three or four days. 2. To eradicate malaria from the patient's system, by killing all the malaria parasites in the tissues and blood, thereby preventing relapses and transmission of malaria to other people, through the bite of mosquitoes. This is called sterilization treatment.

To Bass belongs the credit of conceiving, initiating and strongly advocating the general adoption, by the medical profession, of the standard treatment. His commendable and extensive study on sterilization with quinin, in more than 25,000 malaria-infected persons in Bolivar and Sunflower counties, in the Mississippi Delta, in 1916, 1917 and 1918, was a valuable contribution to medicine.

We heartily approve and commend the principle of curing the patient of malaria. Sterilization treatment not only prevents relapses in a goodly number of cases, but also prevents the malaria patient from infecting mosquitoes. It is both a logical and a sensible line of treatment, and also an important factor in helping to control successfully the spread of malaria.

We do not, however, concur with Bass' claim of successful sterilization with standard treatment in more than 90 per cent. of cases. We question this high percentage of cures for the following reasons:

1. Our observations (as yet comparatively limited) made on infants and children, in a malarial district, lead us to think that 75 per cent. of apparent sterilization on standard treatment is a very generous estimate. In practically all of our cases we gave larger doses than standard treatment requires. In three of our fifty closely studied cases, we had instances of relapse during standard treatment. In three others, relapse occurred after standard treatment had been given twice, with an interval of two or three weeks between treatments. In one other, relapse occurred after standard treatment had been given three times. The question of reinfection, in these cases, we believe could be excluded, for treatment was begun in October, and ended when no mosquitoes were around.

2. It is generally conceded that we have no positive way of telling when a patient has been disinfected. The term "apparent disinfection" may not be an incorrect one to use, in view of our present limited scientific and clinical knowledge of malaria. Absence of clinical symptoms and failure to find malaria parasites in the blood do not prove that the patient is free from infection. Bass proved this in his experiments in Bolivar County. The total number of cases under study was 31,459. Of this number, 40.3 per cent. (13,524) gave positive histories of one or more malarial attacks during the preceding twelve months. One blood examination made by thick film method on all these patients, showed only 28.96 per cent. of them to have parasites in the blood: a little better than one positive blood examination in every four clinically positive malaria cases. Blood examination (presumably one) on the remaining population, 17,932, with negative histories of clinical malaria, showed that 15.93 per cent. (2,856) had malaria parasites in the blood.

3. It is well known that malaria parasites may be harbored in the tissues of the body for months or for years, without any positive visible signs or symptoms. When in the tissues, they cannot be killed by ingesting any practical amount of quinin, either during acute attack or subsequently. Quinin kills them only when they get out of the tissues into the free circulating blood. Therefore, it does seem logical to question whether standard treatment, extending over eight weeks and four days, will kill all parasites in tissues in more than 90 per cent. of cases.

4. Bass' 90 to 95 per cent. cures were based on a resurvey of patients one year after treatemnt. This check was not free from possible error. As previously stated, malaria parasites can lie dormant in tissues without clinical manifestation, and with negative blood, for more than a year. Again, Bass' figures as to the number of his malaria cases, in experiment, may have been too high. If so, it would necessarily influence his percentage of cures. Three factors contributed to the diagnosis of malaria in his case: (1) the general practitioners; (2) the laymen, and (3) the microscope.

The general practitioners made the diagnoses in one fourth of the cases. We all know general practitioners in rural districts are rushed for time, and oftentimes call many diseases malaria which are not. Also the laymen's statement of previous malaria attacks were accepted as diagnostic of malaria. Again, it is fair to assume that in such an extensive survey, there might have been many who honestly imagined they had previously had malaria, when as a matter of fact they had not. We need only refer to the financial success of the chiropractors, and the other exponents of various cults, to substantiate this point.

ULTRASCIENTIFIC TREATMENT

By ultrascientific treatment of malaria, we mean "no malaria parasites found in blood, no quinin to be given." The strict application of this so-called scientific treatment is unquestionably wrong in principle. It is more the duty of the medical profession to alleviate suffering and cure diseases than to sacrifice patients' physical welfare on the altar of science. When we know that only 28.96 per cent. of malaria-infected patients will present a positive blood finding on one examination; and when we know that the average physician usually excludes malaria in his differential diagnosis on one negative finding in the blood, it is quite clear that ultrascientific treatment in malaria is unjustifiable.

Again, we all know there are cases of malaria in which an absolute diagnosis cannot be made, in spite of all of our scientific facilities and diagnostic acumen. In such cases, after scientific measures have failed to give us the diagnosis, the therapeutic test of proper doses of quinin is not only permissible but mandatory.

Briefly expressed, we believe that "scientific treatment plus brains" is the best up-to-date treatment of malaria.

SUMMARY

1. Malaria presents a different clinical picture in infancy and up to 3 years of age from that seen in adult. The younger the patient, the more decided is the difference.

2. Periodicity in subjective and objective symptoms is more frequently absent than present. Fever is oftener remittent, irregularly intermittent or absent, than regularly intermittent.

3. Enlargement of the spleen is absent in fully 30 per cent. of cases of malaria in infancy.

4. Sterilization with standard treatment of more than 90 per cent. of malaria cases, we believe to be questionable

5. Ultrascientific treatment of malaria, "no malaria parasites found in the blood, no quinin to be given," is wrong in principle and in practice.

ABSTRACT OF DISCUSSION

DR. WILLIAM WESTON, Columbia, S. C.: In very young children, malaria does not run true to our accepted ideas of the disease at all. I have seen malaria in an infant 5 days old. Dr. Mulherin is right in saying that in only 25 per cent. of the cases will one find the organism after diligent search. One sign that should always be looked for is a low leukocytosis. In the case of the 5 days old baby the leukocytes which should have numbered ten or twelve thousand, numbered only 4,500, and we could not find the malaria parasite. In many instances no periodicity is manifested. The child will become strikingly anemic with no enlargement of the spleen. That is absolutely unlike the type of malaria in adults. Another point: How are we going to tell when we have the infant cinchonized? A leukocyte count should be made every other day, and when the count reaches 7,000, one should slow down on the quinin. Many infants do not take quinin well at all. In some of my cases the desquamation was much more severe than in scarlet fever. Therefore, it is of the utmost importance to keep track of the leukocyte count.

DR. JAMES D. LOVE, Jacksonville, Fla.: I must confess to a certain degree of skepticism concerning the condition known as afebrile malaria. While I admit that such a condition does exist, at the same time I am thoroughly convinced that most diagnoses of afebrile malaria rest on an error of judgment. Dr. Mulherin called attention to the fact that malaria in infants is remittent rather than intermittent. That circumstance is due to the fact that there is an asynchronous sporulation of the malaria parasite. Instead of the sporulation occurring only once in twenty-four hours, it occurs probably several times, and the products are set free in the blood several times during the twenty-four hours. This accounts for the absence of chills, and at the same time it calls for the more frequent administration of quinin than if we were treating an adult. Quinin should be administered to the infant more than three times a day in order to meet this peculiar condition. The standard treatment which Dr. Mulherin refers to calls for the administration of 1 grain of quinin, three times a day, to an infant 1 year old, and thereafter 1 grain, once daily, for a period of from six to eight weeks. Infants require relatively larger doses of quinin than adults, and I am convinced that the doses recommended are too small. For some unknown reason, the average child suffering from malaria has a greater gastric and intestinal tolerance for quinin, and when I administer quinin in a suspected case of malaria, if the quinin is promptly rejected, if there is marked intolerance, gastric and otherwise, for the quinin, I question the correctness of my diagnosis.

DR. JOHN ZAHORSKY, St. Louis: We have to use our clinical sense and brains in addition to the laboratory test. A case in point is that of a boy, aged 13, who had a temperature of 106 F. recurring for a week, with sweats, continuing for a week or ten days. It was suggested that it might be malaria; but we all failed to find the parasite in the blood. There was no leukocytosis and no enlarged spleen. However, clinically, the case seemed to be one of malaria. We tried the therapeutic test and gave 20 grains of quinin. The boy had no more chills. Did he have malaria ? I do not know. Babies stand 4 or 5 grains of quinin very well, and if the stomach does not tolerate it, we sometimes give it intramuscularly or intravenously. One large dose, 5 grains, intramuscularly, will prove effective.

DR. FRANKLIN P. GENGENBACH, Denver: Last fall I saw a child of parents who had been living in Colorado for seven years. The child was breast fed but was not doing well. It developed a fever, and we suspected pyelitis. Several examinations of the urine obtained at home were negative. We found a low leukocytosis. On closer questioning, we learned that the child did not have fever every day, but every few days. Then the child developed an enlargement of the spleen, and we found the malaria parasite in the baby's blood and in the mother's blood. We were quite puzzled how to explain the origin of the disease. The anopheles mosquito is unknown in Denver, and we wondered how the baby could have contracted malaria because it was born in Denver. Cases of malaria occurring immediately after birth are reported in the literature, but usually the mother is having active symptoms at the time. We were in doubt whether my case was one of congenital malaria or not, but my impression is that it was. As to the dosage, we gave this baby 2 grains of quinin every four hours until the paroxysms were controlled.

DR. ARTHUR G. JACOBS, Memphis, Tenn.: One grain of quinin, three times a day, to an infant 1 year old, is practically useless. We have been giving to a child of that age 2 grains, every three hours. In Arkansas malaria is very prevalent. It is a by-word with us that if a baby comes from Arkansas we should give quinin hypodermically, 3 or even 5 grains, and possibly we have to repeat that dose in three days. In some resistant cases we administered quinin once or twice intravenously. There were two unfortunate results from the intravenous use of quinin, and in a pathologic conference held over these cases it was decided that the deaths which occurred after the intravenous use of quinin were due to shock. It is difficult to understand how the intravenous injection of a comparatively small amount of quinin can produce death in a child who could take 2 or 3 grains of quinin a day for a week, but yet 2 or 3 grains intravenously did produce death, so that we do not use quinin intravenously any more. We have found that a case which will not yield to quinin by mouth will yield to quinin given subcutaneously.

DR. ROBERT A. STRONG, Pass Christian, Miss.: It is extremely difficult to find the organism in a child 2 weeks old. Heredity no doubt plays an important part. Usually the mother is actively infected at the time. There are two or three reasons why we do not find the organism more often. Frequently a patient will come in after having been given quinin, and it is almost impossible to find the organism for three or four days afterward. I want to direct attention to one important point, and that is to look out for carriers in the household in which the patient lives. On the other hand, the organism may be locked up in the spleen and not be in the circulation. So far as the standard treatment of malaria goes, it is by no means the best, but at the same time I do not think one will go far wrong if one follows the instructions of the National Commission. There are two ways to eliminate malaria: one is to eliminate the mosquito. It is less expensive to sterilize the patient.

DR. WILLIAM A. MULHERIN, Augusta, Ga.: Dr. Weston has followed up the very valuable point that the low leukocyte count is a very important sign. If that is present in a malaria district, then a therapeutic dose of quinin should be given. Regarding the afebrile type of malaria: it does exist, and you can explain it on the same ground that different infections act differently in different hosts. About the dosage: Bass is correct when he advocates giving quinin by mouth. It is a slow absorption; the only organisms that are going to be killed are those in the blood. Bass' idea of giving quinin by mouth is best. I have no confidence in giving it by the hypodermic or intravenous method. With regard to following up the standard treatment, that has two purposes: first, to stop the acute manifestation, and then to get the malaria out of the patient because the mosquito gets the parasite and transmits it to the next person. That is one of the ways of getting rid of malaria.

Average Sickness Loss in Industry.—Statistics compiled by the U. S. Public Health Service through a large western corporation show that for the year ending Jan. 31, 1921, the annual loss among 1,282 office employees from sickness was 8.15 days per person. An accurate record was kept of the hours of work missed by each person due to sickness or illness, the sickness being diagnosed by the medical department or by the family physician. The majority of the 1,282 office employees were women, whose sickness rate has been found to be higher than that of men.

NOCTURNAL (PAROXYSMAL) DYSPNEA

ITS TREATMENT WITH THYROID GLAND *

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Dyspnea is an important symptom in a variety of pathologic conditions. The majority of cases, however, are contributed by disturbances of the heart, lung and kidney. Often two or three of these organs are so extensively involved that immediate responsibility for dyspnea can be fixed only with the greatest difficulty, if at all. Recognizing the rôle played by disease of the lung and kidney in the production of dyspnea to be an important one, the present discussion is confined to those cases in which the cardiovascular system predominates the picture.

In heart disease, air hunger may present itself in three ways: It may be persistent even under conditions of prolonged rest. It may be incidental to moderate exertion. It may occur only in paroxysms. In the first instance it is associated with broken compensation. In the second, it expresses a limited cardiac reserve. In the third group, however, the every-day laws of compensation and reserve apparently are not operative. Paroxysms are especially prone to occur during rest, not infrequently in the early morning at a time when demands on the heart have, for some hours, been reduced to a minimum.

Paroxysmal manifestations are a common occurrence in severely decompensated cases. The term, as used here, does not refer to patients with evident, continued dyspnea of the Cheyne-Stokes variety, or to exertion dyspnea of the paroxysmal type. It is confined to individuals capable of exertion without respiratory distress, with no gross secondary manifestation of heart disease, and possessed of a vital capacity within normal limits.

The difference between the first and second groups of patients with dyspnea is of degree rather than kind. The tendency is for the second, sooner or later, to merge into the first. The observations of Peabody and his co-workers [1] on vital capacity and minute volume have placed in our hands a means of estimating the reserve strength of the heart in these two groups, comparable to the measurement of thyroid activity through basal metabolism readings. Whether or not venous engorgement of the pulmonary vessels and consequent stiffening or loss of elasticity of lung tissue is a satisfactory explanation for the mechanics of cardiac dyspnea may be questioned. The value and utility of vital capacity and minute volume, however, are definitely established. Unfortunately, vital capacity records are of little value in pure paroxysmal dyspnea, for the reason that lung volume and elasticity are but slightly impaired.

That the paroxysms of nocturnal dyspnea are cardiovascular in origin is evidenced by: (1) the absence of lesions of the kidney and other organs; (2) physical signs of organic damage to the heart; (3) the supervention of broken compensation, and (4) postmortem findings.

I have had fifteen patients under observation for at least one year. Classified clinically, four had myocarditis, six aortic disease, and five arteriosclerosis. The majority of all cases of nocturnal dyspnea are associated with these three diseases. In this series, all patients had nocturnal dyspnea. Paroxysms during the day were very exceptional. None had kidney disease of any consequence, as shown by urinalysis and the phenolphthalein test. All patients were ambulatory, and none had given up or changed his previous occupation.

The history of Case 6 is typical, in the essentials:

> A man, aged 43, a letter carrier, whose family history was unimportant, had syphilis at 22, for which he received treatment for two years. He married at 28, and was the father of three children, all healthy. The wife had no miscarriages or premature labors. For about six months prior to examination, July 5, 1916, he had been disturbed by attacks of shortness of breath on falling asleep. On the preceding night he had suffered eleven attacks before finally obtaining any rest. The day preceding the attacks had been routine. Nocturnal disturbances had been experienced at irregular intervals, and sometimes followed days or weeks of complete freedom.
>
> The arteries were not palpably thickened. The pulse was regular, synchronous in the radials, and of the water-hammer type. There was no visible capillary pulse. The apex beat of the heart was in the nipple line under the sixth rib. There was no thrill, and no dulness in the second interspace. A soft diastolic murmur was audible on immediate auscultation at the aortic area, and also from this point downward and toward the left. The systolic pressure was 135, the diastolic 50. Otherwise the examination was negative.
>
> The important clinical features were: first, history of syphilis; second, physical signs of aortic disease, and third, distressing nocturnal dyspnea, which constituted the only symptom of ill health.

Careful questioning in the fifteen cases, and personal observation in some, revealed the sequence of events recorded in this case to be the typical picture. During a period of apnea or immediately preceding one, the patient would fall asleep. The apneic period terminated in hyperpnea of the Cheyne-Stokes type. During the latter, consciousness returned with a most unpleasant and often alarming sense of air hunger. Examination during an attack gave no evidence of cardiac dilatation, and little change in rate. If the threshold of sleep was successfully passed, three or four hours of unbroken rest almost always ensued.

Reference, at this point, to the intensity of the slumber curve supplies an interesting suggestion. Howell,[2] Michelson and others have shown that the greatest intensity of slumber, as measured by the intensity of auditory stimulus necessary to arouse consciousness, is reached about an hour after the beginning. From this point there is a rapid fall in the curve, and from the third hour on slumber is very light. As Howell expresses it, "The activities of the brain lie just below the threshold of consciousness."

The paroxysm occurs before deep slumber has been attained or after light sleep has supervened, and only occasionally in deep slumber.

If we knew something of the physiology of sleep, a rational explanation might be offered. Unfortunately, we do not. In a review of the information and theories on the subject by Haberman,[3] the conclusion drawn is that:

> From the evidence so far accrued, we may at least assume one can sleep whether "product fatigued" or not and whether

* Read before the American Climatological and Clinical Association, Washington, D. C., May 2, 1922.

1. McClure, C. W., and Peabody, F. W.: Relation of the Vital Capacity of the Lungs to the Clinical Condition of Patients with Cardiac and Renal Disease, J. A. M. A. **69**: 1954 (Dec. 8) 1917. Peabody, F. W.: Cardiac Dyspnea, in Nelson's Living Medicine **4**: 301.

2. Howell: J. Exper. Med. **2**: 313, 1897.

3. Haberman, J. V.: Sleep (Normal and Abnormal), M. Rec. **101**: 265, 1922.

there be anemia or plethora in the brain and whether the plethora be arterial or venous. One may sleep with lowered or heightened intracranial pressure, though the latter is (pathologically) especially sleep tending. Sleep does not depend upon hypo- or hypermetabolism, though the former (in the sense of lessened energy denotation) no doubt more often obtains; and however endocrine dysfunction might induce or hinder sleep, regular sleep is nevertheless present in all types of endocrinopathy.

There is no sleep center, nor is sleep occasioned through subcortical block.

Unfortunately, Haberman proceeds to offer a theory of his own, in many respects quite as unsatisfying as those he refutes.

Whatever the mechanism, it is apparent that the respiratory center is relatively unstable in "threshold slumber." This is shown by the great frequency of Cheyne-Stokes breathing during light sleep of normal individuals and by the tendency of paroxysmal dyspnea to manifest itself at this time. It is as though during threshold slumber a conscious and a sleep control of respiration were tossing responsibility from one to the other.

The pathology of nocturnal dyspnea is the pathology of myocarditis, of aortic disease, of arteriosclerosis and, less frequently, of other forms of heart disorder. Recently, Leo Hess has reported necropsies in cases of cardiac dyspnea. I quote from an abstract of his article:

Three cases with the usual picture of continuous respiratory distress had in common a high grade of damage to the whole heart muscle, while on the coronary vessels no gross changes were demonstrable. In contrast were the anatomic findings in six patients with paroxysmal attacks of dyspnea. In all there were infarcts in the musculature of the left ventricle, chiefly at the apex, corresponding to the end branches of the coronary arteries, while the nonproximal portions of the muscle were completely free.

Hess discusses the possibility of connecting the anatomic findings with the clinical picture of shortness of breath. The dyspnea attacks he believes to be due to spasms of the pulmonary vessels, since in similar clinical pictures he often found an irregular distribution of blood in the various parts of the lungs, postmortem. This view in regard to the participation of the pulmonary vessels in paroxysmal dyspnea would have the advantage that it could explain the frequently concomitant pulmonary edema in cardiac asthma, for which the diminution of the power of the left ventricle cannot alone be made responsible.

Not questioning the observations of Hess, it is evident that his postmortem reports are of end-results and are not necessarily applicable to the relatively benign manifestation of disease here considered.

In following the subsequent history of cases under observation for several years, I have become impressed by the frequent development of cerebral arteriosclerosis. The types of cardiopathies exhibiting this symptom lend further evidence to this view. The conclusion that nocturnal dyspnea is an early manifestation of cerebral arterial disturbance in the bulbar region and incidentally in the respiratory center seems reasonable.

In the treatment of nocturnal dyspnea dependent on a diseased cardiovascular system, general management of the patient and intelligent care directed toward the specific cause are as important as in the usual cardiopathies. However, we are interested here in the relief of a symptom, precocious in its appearance and exhibiting peculiarities of its own. Therapeutic measures commonly employed are of two kinds. Curiously, these agents are physiologically antagonistic. One group is a cerebral depressant, the other an excitant. Peabody gets best results from morphin, Hoover,[4] from caffein citrate. In my experience, cerebral depressants aggravate the condition, unless pushed to such a degree that the patient is narcotized to his distress, while cerebral excitants, in the form of caffein, often prevent the paroxysm by keeping the patient awake.

In the present heyday of hormone therapy and endocrine romance, one hesitates to add a single indictment to this already crowded docket. In extenuation of the present offense the following may be offered: First, the administration of thyroid gland to patients with nocturnal dyspnea has afforded relief after other measures have failed. Second, the physiologic action of thyroid on the general metabolism, on the excitability of the respiratory center and on arterial vasomotor tone is such as to indicate the rationale of its application to this condition. Third, the ultimate relief of symptoms following the administration of the iodids may be due to stimulation of the thyroid through their iodin content. Finally, nocturnal dyspnea is most frequently encountered in patients at an age with which diminished thyroid secretion is concomitant.

The average age of the fifteen patients was 52. The youngest was 42, the oldest, 64. All patients were given dried thyroid gland. The average dose was about 1½ grains (0.1 gm.) three times a day. This dose was usually administered for from two to three weeks, followed by an intermission of from one to two weeks. Twelve of the patients were distinctly relieved of dyspnea and showed no bad effects of the medication. Two were unaffected by treatment. One was unfavorably affected. He had increased dyspnea and rapid heart action, and became nervous. The three patients who did not show improvement were of the myocardial group. The pulse rate of each was above 80 before institution of treatment.

It has been my experience that patients presenting paroxysmal dyspnea dependent on myocarditis and having a material increase in pulse rate react badly to thyroid gland. Administration of physiologic doses to patients with marked cardiac damage is a hazardous procedure. Under any circumstances, patients receiving thyroid gland for the relief of nocturnal dyspnea should be under careful observation.

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THE ATONIC ABDOMINAL WALL

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If I were discussing a new condition, I might be permitted to add a new name to our overburdened nomenclature by calling the atonic abdominal wall "atonia abdominalis"; but the object of this paper is to emphasize rather than to unfold.

The need of dignifying this condition with a name was suggested to me by the large number of strong, healthy coal miners who come to me complaining of all the ills in the dictionary, and having in common the one physical attribute which is the title of this paper.

Especially noticeable is the fact that coal miners who have had chronic appendicitis or chronic cholecystitis do not appear to obtain the fullest benefits from surgery that other classes realize. Also, it has been noticed

4. Hoover, C. F.: Respiration Symptomatology, in Nelson's Living Medicine, p. 400.

in Fairmont Hospital No. 3, which is a hospital catering especially to injured working men, most of whom are miners in this region, that apparently slight fractures of the lower anterior ribs are subject to periods of disability of from two to four months; and those so injured subsequently complain of abdominal pain for many more months. Almost invariably, these patients present the picture of a flabby abdominal musculature, although they have enormous biceps, vast corded serrati, and strongly muscled backs and thighs.

The symptoms, as a rule, are general abdominal discomfort, headache, discomfort after meals, constipation, and abdominal pain after lying down, relieved toward morning. There is absence of anorexia, abdominal tenderness on palpation, leukocytosis, fever, anemia and impotence. The diagnoses brought in from the attendant mine physician are, in order of frequency, malingering, hysteria, neurasthenia, chronic constipation—probably paradoxical—appendicitis, gallstones, intestinal adhesions and gastric ulcer; and the treatment had run through the pharmacopeia. It was noticed that physical examination constantly revealed good general nutrition, extreme bulging of the lower half of the abdomen, and remarkably poor tone to the rectus muscles of the abdomen. This was made especially noticeable in men who were muscled like Hercules, men engaged in the most arduous toil, whose deltoids were huge blocky masses, and whose backs and thighs were hard and corded.

The question arose as to why this group of abdominal muscles should be so attenuated. There is but one answer to group attenuation in muscles, and that is nerve function to that group. Our effort then lay in discovering the reason for disturbed function, and this consisted in eliminating, from the three, nerve injury, nerve paralysis from toxemia, and nerve inhibition from central cause, all of which would cause the same condition, namely, lack of use, and therefore lack of tone to the muscle.

Of course, in a parous woman, a rachitic child or an old person other causes might be considered; but we are considering the basis of this condition found in otherwise healthy men, doing arduous labor and eating the best of food.

The most reasonable working hypothesis appeared to be that there was a voluntary inhibition of the abdominal musculature on account of the pain of their pull on a broken rib to which they were attached, or during the period of acute abdominal pain when their relaxation gave relief to the patient. As long as the local condition causing the relaxation existed naturally, the inhibition to the nerves controlling these muscles would continue; but after the removal of the primary cause, the inhibition habit remains.

One of the marvels of anatomy to the thinking anatomist is the fact that the abdominal viscera remain in place. The ligamentous support of any viscus is apparently wofully inadequate. It is, indeed, proved to be inadequate without the powerful assistance of a supporting anterior wall holding up the pneumonic supporting pad, the intestine. This anterior wall, the musculature of the abdominal wall, is the beginning, the foundation of the entire structure; and, as a child's building blocks, the entire structure falls when the abdomen relaxes. Hundreds of useless suspension operations have been devised, exploited, boosted and then reluctantly and dazedly abandoned because the one essential element was omitted—the removal of the original cause.

In our series of cases, great care was taken to eliminate local disease, and also to secure the intelligent cooperation of the patient. We depended for a cure almost entirely on exercises tending to develop the abdominal muscles. The best exercise appeared to be to lie supine on the floor and rise to a sitting posture without the use of the hands. This was to be practiced assiduously morning and evening to the limit of the patient's endurance. It does not take much to tire these patients, at first. The results are surprising. There is no muscle in the body which appears to hypertrophy so quickly as the recti abdominales. Their segments become apparent in a few days and quickly harden. The bowels become more regular at once, though in long drawn out cases this is a variable factor.

The most difficult problem in nonmedical treatment in laboring classes is that they will not cooperate with their physician. They want some medicine to drink out of a bottle. They have little confidence in the drugless methods. This calls, of course, for the development of personality on the part of the physician, without which he will derive little benefit from this or any other discussion excepting specific medication.

Our experience has been that these patients are most tractable and willing to cooperate. They have really been incapacitated. It is easy to point out to them the weakness of their abdominal muscles; the explanation is so logical that the most simple minded can understand.

The results in our hands have been most excellent.

28 American Building.

OPTIMAL FOOD MIXTURES FOR DIABETIC PATIENTS*

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An attempt to analyze the more important requirements of satisfactory diets for diabetic patients is presented in this paper, and a method for calculating diets to satisfy these requirements is proposed.

A satisfactory diet should, in theory, embody four principles: (1) that of total dietary restriction; (2) that of protein restriction; (3) that of carbohydrate restriction, and (4) that of balanced fat and carbohydrate (ketogenic and antiketogenic materials), so that the accumulation of acetone bodies is avoided. Each of these principles is well established, and none of them can be safely disregarded.

THE PRINCIPLE OF TOTAL DIETARY RESTRICTION

Restriction of the total calory intake is usually attended with benefit to the patient. This has been amply proved particularly by Allen[1] and Joslin.[2] Further confirmation is afforded by the diabetic morbidity and mortality statistics of Berlin during the war, when food restriction was enforced.[3]

Recently there has been some inclination to disregard this experience. This cannot be regarded as justifiable,

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* From the Division of Medicine, Mayo Clinic.
* Read before the Section on Pharmacology and Therapeutics at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Allen, F. M.; Stillman, E., and Fitz, R.: Total Dietary Regulation in the Treatment of Diabetes, New York, Rockefeller Institute for Medical Research, 1919, Monograph No. 11, 646 pp.
2. Joslin, E. P.: The Treatment of Diabetes Mellitus, Ed. 2, Philadelphia, Lea and Febiger, 1917, 559 pp.
3. Magnus-Levy, A.: Ueber den Diabetes in Kriege, Deutsch. med. Wchnschr. **45**: 1379-1382, 1919.

although it is legitimate to demand whether the extreme underfeeding practiced in late years is unavoidable and whether the loss of body weight, the inevitable consequence of extreme undernutrition, is as necessary a corollary of the principle of total dietary restriction as has been supposed. If not, it would seem desirable, while maintaining the principle, to protect the patient so far as possible from loss of weight. It is suggested that the chief benefit of calory restriction depends on the reduction of the metabolic rate, accomplished by fasting or undernutrition, rather than on the reduction of the total body mass.

Allen and Du Bois,[4] in 1916, observed that depression of metabolism was of beneficial significance in diabetes because the food requirement was lowered thereby, and recently Allen [5] has reported experimental data obtained on partially depancreatized dogs, which support the view that the effects of undernutrition are due to a reduction of metabolism. The data obtained in a severe case of diabetes by Wilder, Boothby and Beeler [6] likewise show that the sugar tolerance of the diabetic patient is increased by measures which depress the basal metabolic level. Throughout a series of experiments, in periods when the basal metabolic rate fell, the sugar tolerance increased; and, on the other hand, when the rate was highest, the sugar tolerance, as judged by the dextrose-nitrogen ratio of the urine, was depressed to zero. The inverse parallelism of the plotted curves of the basal metabolic rate and sugar tolerance was striking.

Starvation or prolonged undernutrition causes a drop in the metabolic level, but does not invariably do so. Indeed, the level may actually rise, as the observations of Loewi [7] on himself illustrate. As a result of food restriction necessitated by the war, Loewi lost gradually in weight during 1916 and the early part of 1917 and simultaneously his heat production fell; but in July, 1917, when he had lost 22 per cent. of his former weight and when the total calories and protein of his diet were low, his heat production suddenly rose again to a level above that observed in 1914. On the day of observation, the nitrogen of the food was 8 gm. and that of the urine 17 gm. Presumably, when the fat stores of the body are exhausted, the body protein is called on to provide the deficit of energy in the diet, and the specific dynamic action of this protein will elevate metabolism. When this occurs in the diabetic patient, the effect on the sugar tolerance is disastrous. Woodyatt [8] points out the necessity of thinking in terms of metabolism rather than of the diet exclusively in gaging the significance of the effects produced by any dietary proposal, and illustrates this by the report of a case. The ordinary practice of undernutrition failed after nine weeks of trial to establish his emaciated patient in a nondiabetic state with more than 953 calories, whereas after two weeks of a rice and butter diet, equivalent to more than twice the number of calories formerly taken, the carbohydrate tolerance had increased enormously. Urinary nitrogen data are not included in the report, but it is evident, as Woodyatt concludes, that the man on his low diet catabolized so much of his own tissue protein that his protein sugar overtaxed his tolerance limit. We have observed the same phenomenon in several cases, and are convinced that mere loss of body mass is not responsible for the benefit usually obtained by undernutrition.

If the benefit from starvation and undernutrition is derived through lowering the rate of metabolism, such extreme restriction of the diets as has been practiced in recent years is unnecessary, because equal reduction of the metabolic level can be accomplished by much less rigid measures. For example, Lusk [9] has recalculated some of the data obtained by Benedict on a group of healthy college students who were being fed low calory diets, and has compared them with the data obtained by Benedict on a fasting man. He comments: "It is quite extraordinary that the ingestion of a dietary deficient in calories, extending over three weeks, should bring down the basal metabolism of well nourished young men to the same extent as fasting might have been expected to accomplish."

The basal metabolic rate in diabetes has been a matter of controversy. Benedict and Joslin [10] have claimed that it was increased. Allen and Du Bois [4] pointed out that of the twenty-six carefully investigated cases reported, it was normal in thirteen, increased in nine, and decreased in four. Recent investigation of this subject has been made by Wilder, Boothby and Beeler [6] on thirty-one patients with diabetes with the following conclusions:

In diabetes in well nourished patients, the basal metabolic rate does not exceed the normal limits of Du Bois' [11] standards, unless the patient is on a high protein or high calory diet, or has some complicating condition, such as an infection or hyperthyroidism (adenoma of the thyroid or exophthalmic goiter). Acidosis itself does not appear to elevate the basal metabolic rate; an increase in the rate accompanied by acidosis is probably due to the factor that causes the acidosis.

In diabetes in patients who are distinctly under weight and have not been receiving a diet high in protein (or calories), the basal metabolic rate is below the normal limits of Du Bois' standards. The observations of a basal metabolic rate equal to or higher than the Du Bois normal in an emaciated patient should be taken as a warning that the available food of the diet is excessively rich in protein (or calories) or that the patient has long been on a diet so low in calories that he is in a critical state of starvation and is calling on his body protein to meet energy requirement.

In my experience, low protein diets planned to provide calories 20 per cent. below the calculated maintenance calory requirement of an individual comparable in age, sex, height and weight to the patient will, under favorable conditions, accomplish a depression of the basal metabolic level of from 15 to 25 per cent. Since the depression of the metabolism will balance the calory deficiency of the food, diets thus planned, theoretically should maintain, and in practice actually have maintained, patients at constant body weights. Such a dietary procedure can be called low maintenance

4. Allen, F. M., and Du Bois, E. F.: Clinical Calorimetry. Seventeenth Paper: Metabolism and Treatment in Diabetes, Arch. Int. Med. **17**: 1010-1059 (June) 1916.
5. Allen, F. M.: Experimental Studies in Diabetes, Series II, Changes in Assimilation by Alterations of Body Mass, Am. J. M. Sc. **161**: 16-32 (Jan.) 1921.
6. Wilder, R. M.; Boothby, W. M., and Beeler, Carol: Studies of the Metabolism of Diabetes, J. Biol. Chem. **51**: 311-357, 1922.
7. Loewi: Quoted by Lusk (Footnote 9).
8. Woodyatt, R. T.: Objects and Method of Diet Adjustment in Diabetes, Arch. Int. Med. **28**: 125-141 (Aug.) 1921.
9. Lusk, Graham: The Physiological Effect of Undernutrition, Physiol. Rev. **1**: 523-552 (Oct.) 1921.
10. Benedict, F. G., and Joslin, E. P.: Metabolism in Diabetes Mellitus, Washington, Carnegie Inst., 1910, Pub. 136; Metabolism in Diabetes, Washington, Carnegie Inst., 1912, Pub. 176; Ueber den Stoff und Energieumsatz bei Diabetes, Deutsch. Arch. f. klin. Med. **111**: 333-365, 1913.
11. Du Bois, D., and Du Bois, E. F.: Clinical Calorimetry, Tenth Paper, A Formula to Estimate the Approximate Surface Area if Height and Weight be Known, Arch. Int. Med. **17**: 863-871 (June) 1916.

in contradistinction to undernutrition, which is reserved for the more rigid food restrictions.

THE PRINCIPLE OF PROTEIN RESTRICTION

The desirability of protein restriction has been recognized for many years, but rigid or maximal restriction of protein has not been a general practice. This is advocated, however, by Marsh, Newburgh, and Holly,[12] and herein lies the main difference between the higher fat diets recently introduced at the Michigan Clinic and the high fat diets of former years, explaining in all probability the better therapeutic results obtained by the Newburgh procedure.[13]

Protein restriction is indicated for three reasons: (1) because the ingestion of protein actually throws a large amount of sugar on the metabolism, 58 per cent. by weight of protein being convertible to glucose; (2) because the relatively high specific dynamic action of protein produces an undesirable elevation of the metabolic rate, and (3) because an excess of protein exerts a specifically depressant effect on the ability of the organism to utilize glucose. Evidence supporting these statements is offered in a previous publication.[6] Under the circumstances, it is certainly desirable to restrict the protein quota of the diet as rigidly as is consistent with the maintenance of a satisfactory nitrogen balance.

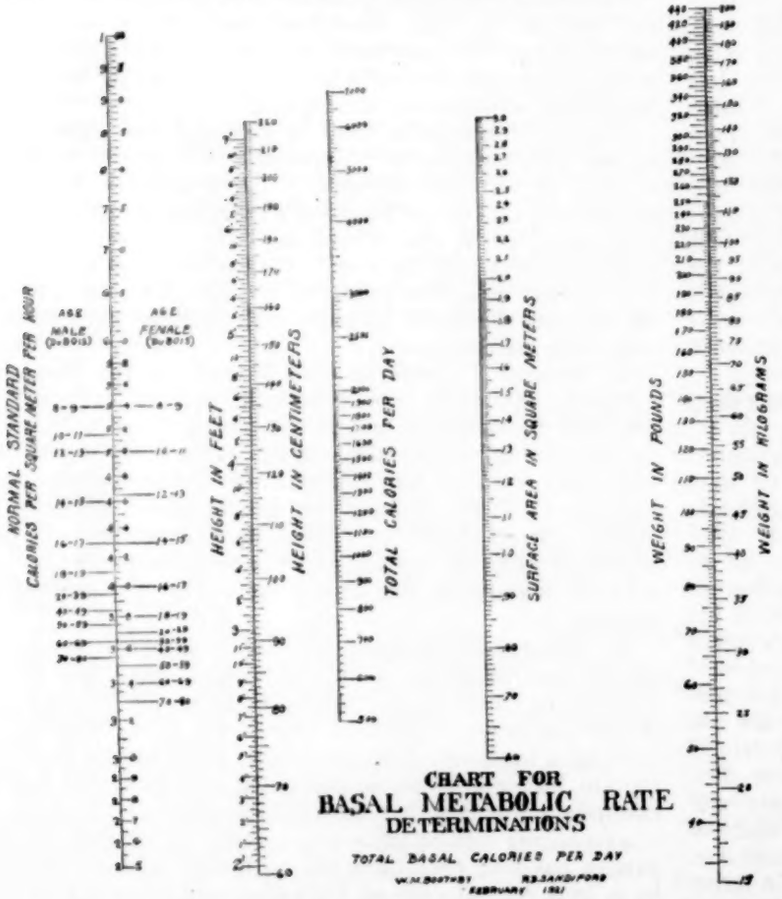

Fig. 1.—Boothby and Sandiford's chart for quick and accurate calculation of normal basal food calory requirement. The weight is located on the weight scale and the height on the height scale with pins (needles set in wooden handles. A straight edge connecting these two points crosses the surface area scale at the patient's surface area. The normal standard is located on the left hand scale. The line connecting this point with the surface area crosses the calory scale at the basal twenty-four hour calory requirement.

Marsh, Newburgh and Holly[12] recently published a review of the literature bearing on the minimal protein requirements of normal persons and diabetic patients; their observations show that nitrogen balance may be established in the diabetic according to the laws applicable to normal persons, provided the total calory requirement is fulfilled. Two-thirds gram for each kilogram of the patient's body weight for twenty-four hours usually suffices when the food calories equal the low-maintenance requirements, and it should never be necessary, under these circumstances, to give in excess of 1 gm. for each kilogram of the patient's body weight, except in the case of children. These may require more protein.

THE PRINCIPLE OF CARBOHYDRATE RESTRICTION

There is fairly general agreement on the value of restricting carbohydrates to a point below the patient's sugar tolerance. This principle is based on clinical experience, and is justified on theoretical grounds. Woodyatt[8] considers it entirely legitimate to regard sugar as a stimulant to the sugar-burning mechanism, and since reduction of this strain in the presence of a diseased or weakened mechanism should favor rest and recuperation, the procedure must be regarded as logical therapy. Under these circumstances, there seems to be no adequate reason why the principle should not be carried to the ultimate conclusion of complete carbohydrate restriction, except for the necessity of balancing the glucose against the fatty acids of the mixture for metabolism in order to avoid acidosis.

THE PRINCIPLE OF BALANCING THE GLUCOSE AND THE KETOLYTIC MATERIALS IN THE FOOD MIXTURES

"The fats burn in the fire of the carbohydrate."[14] The oxidation of food mixtures containing greatly disproportionate amounts of fat results in the accumulation of acetoacetic acid, beta-oxybutyric acid, and acetone. If the process is uninterrupted, diabetic coma supervenes. This is the *bête noire* of the diabetic therapist, and high fat feeding was considered to be an extremely dangerous procedure until Newburgh and Marsh[13] published their interesting observations on high fat diets. Certain quantitative data bearing on the process of ketogenesis, the results chiefly of the work of Shaffer,[15] help to explain Newburgh's results, and it appears to be safe to push the fat quota of the diet farther than was formerly considered justifiable. Theoretically, at least, danger can be avoided, provided the ratio between the ketogenic materials, particularly the fatty acids, and the glucose of the metabolizing food

12. Marsh, P. L.; Newburgh, L. H., and Holly, L. E.: The Nitrogen Requirement for Maintenance in Diabetes Mellitus, Arch. Int. Med. **29**: 97-130 (Jan.) 1922.

13. Newburgh, L. H., and Marsh, P. L.: The Use of a High Fat Diet in the Treatment of Diabetes Mellitus, Arch. Int. Med. **26**: 647-662 (Dec.) 1920.

14. Rosenfeld, G.: Ueber die Entstehung des Acetons, Deutsch. med. Wchnschr. **11**: 683-686, 1885.

15. Shaffer, P. A.: Antiketogenesis, I, An in Vitro Analogy, J. Biol. Chem. **47**: 433-448 (July) 1921; II, The Ketogenic Antiketogenic Balance in Man, ibid. **47**: 449-473 (July) 1921; III, Calculation of Ketogenic Balance from the Respiratory Quotients, ibid. **49**: 143-162, 192-

mixture, does not exceed a certain threshold value. This threshold has been defined as the ratio between the molecules of ketogenic material and the molecules of glucose existing in the metabolizing mixture which just fails to cause a clinically significant accumulation of acetone bodies. In determining this threshold, the calculation of the number of molecules of ketogenic material and the number of molecules of antiketogenic glucose in the metabolizing food mixtures has been based on certain assumptions of Shaffer. If these assumptions are tenable, the threshold ratio of significant ketosis is 2:1 according to the observations of Wilder and Winter.[16] This implies that two molecules of acetoacetic acid are provided for by one molecule of glucose, and is in agreement with Shaffer's[17] latest conclusions, although opposed by the views of Woodyatt[8] and those of Hubbard and Wright.[18]

In this connection it is necessary to emphasize that knowledge of the ketogenic ratio of a diet mixture is valueless as a gage of the effect of the diet on ketogenesis *unless the calory and nitrogen values of the diet approximate the calory and nitrogen requirements of the patient.* It is the mixture of glucose and fatty acids actually metabolizing which determines whether or not acetone bodies will be formed. This mixture will differ radically from the diet mixture unless the calory and nitrogen demands of metabolism are met by the diet. Any deficiencies in the diet must inevitably be made good at the expense of endogenous food stores, mostly fat. Obvious as this conception should be, it has nevertheless escaped the attention it deserved in much of the recent discussion of balanced diets. It is an argument for estimating the calory requirement of the patient as accurately as possible, and for supplying food calories in sufficient number to meet this requirement as nearly as possible. The low-maintenance diets proposed here are open to the criticism that additional fat may be added to them from body stores. This will certainly occur when the diet is first started; but when the metabolic level falls to the desired low level it should not occur. Lower diets than those here proposed will demand proportionately greater additions of fat from endogenous sources. Such diets are theoretically ketogenic even when they contain relatively larger proportions of carbohydrate. This may explain why some clinicians are unable to employ high ketogenic ratios without encountering acidosis.

The existence of infection may lower the threshold so that significant ketogenesis may occur with lower ratios. Other factors thus far undetermined may likewise lower the threshold, and it is considered advisable, therefore, in planning diets for diabetic patients to give only such food mixtures as will avoid the 2:1 ratio by a safe margin.

THE CALCULATION OF DIETS WHICH WILL SATISFY THE PRINCIPLES OF DIABETIC DIETOTHERAPY

In order to reduce the basal metabolic level without sacrificing body tissue and in order to increase the safety of high fat diets, the total food calories should be maintained as nearly as possible at 20 per cent. below the calculated total calory requirement. The calory requirement must be estimated with reasonable accuracy, and it has been found more satisfactory to base this estimation on the four factors of age, sex, height and weight, according to Du Bois'[11] standards for surface area, rather than on weight alone, as has been the general custom. The normal basal calories each day for an individual are obtained by multiplying the calories for each square meter of the body surface for each hour, given by Du Bois for the approximate age and sex, by the surface area of the patient determined from his height and weight, and multiplying this sum by 24. This being known, proper correction may be made for the increased quantity of food needed to compensate for any work that is to be allowed, thus giving the total calories desired. No allowance need be included as compensation for the specific dynamic action of food, about 10 per cent., or for movements if the patient is confined to bed or room, another 10 per cent., since it is specified that the calories of the food shall be about 20 per cent. below the total energy needs of comparable normal persons on ordinary diets. For a patient in the hospital, the basal calory require-

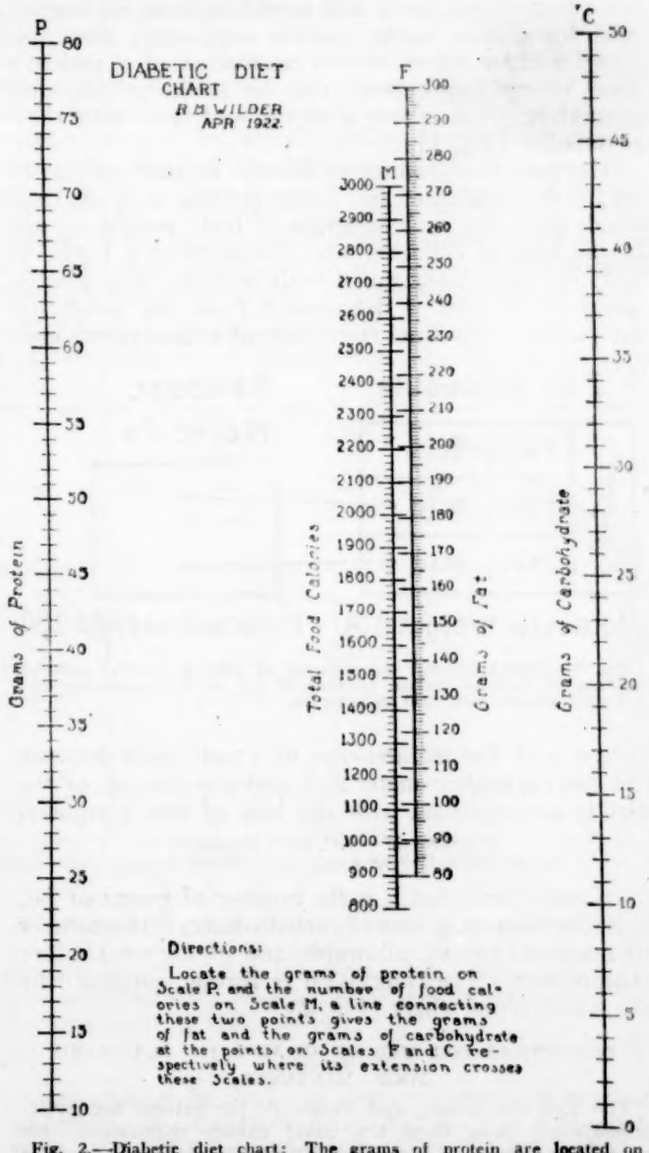
DIABETIC DIET CHART
R.M. WILDER APR 1922.
P
F
M
C
Grams of Protein
Total Food Calories
Grams of Fat
Grams of Carbohydrate
Directions:
Locate the grams of protein on Scale P and the number of food calories on Scale M, a line connecting these two points gives the grams of fat and the grams of carbohydrate at the points on Scales F and C respectively where its extension crosses these Scales.

Fig. 2.—Diabetic diet chart: The grams of protein are located on Scale P, and the number of food calories on Scale M; a line connecting these two points gives the grams of fat and the grams of carbohydrate at the points on Scales F and C, respectively, where its extension crosses these scales.

16. Wilder, R. M., and Winter, M.: The Threshold of Ketogenesis, J. Biol. Chem., to be published.
17. Shaffer, P. A.: Antiketogenesis: The Ketogenic-Antiketogenic Balance in Man and Its Significance in Diabetes, J. Biol. Chem. **50**: 26-27, 1922.
18. Hubbard, R. S., and Wright, F. R.: Studies on the Acetonuria Produced by Diets Containing Large Amounts of Fat, J. Biol. Chem. **1**: 361-402, 1922.

ment is considered to be the total calory requirement. For a patient engaged in a sedentary occupation, an additional 20 to 30 per cent. is added to the basal estimate.

The serviceability of nomographic charts for the calculations involved in metabolic rate determinations was recognized by Boothby and Sandiford.[19] At the time they prepared their charts, I was considering the principles under discussion in the present paper, and it occurred to me that a modification of one of their charts would give the normal basal energy exchange for twenty-four hours and would increase its usefulness for dietetic work. At my suggestion, they prepared a chart by which the calculation of a patient's food calory requirement can be made quickly and accurately. This chart is reproduced here with their permission (Fig. 1).

The protein allowance of the diet is fixed arbitrarily by the desirability of restricting protein to about two-thirds gram for each kilogram of body weight, except in the case of children, who should receive 1 gm. at least for each kilogram of body weight. The protein quota of the diet is determined from the weight of the patient. Maximal restriction of carbohydrate consistent with the maintenance of a safe ratio between the fat (ketogenic materials) and the glucose of the diet is accomplished with the help of two formulas:

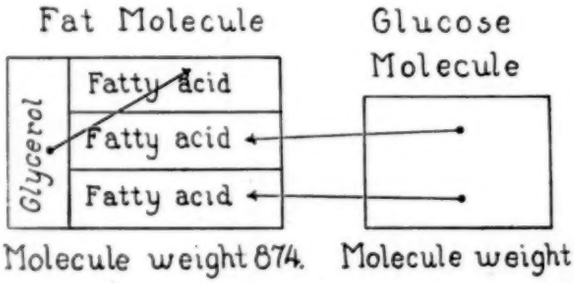

Fig. 3.—Illustrating that one molecule of glucose provides sufficient antiketogenic material for one molecule of fat, on the assumption of a 2: 1 ratio between fatty acid and glucose.

$$C = 0.024\ M - 0.41\ P \qquad \text{Formula 1}$$
$$F = 4\ C + 1.4\ P \qquad \text{Formula 2}$$

In these formulas, F is the number of grams of fat, C the number of grams of carbohydrate, P the number of grams of protein allowable, and M the total calory requirement. The calculation is further simplified by the nomographic chart (Fig. 2).[20]

DIRECTIONS FOR USE OF CHARTS IN PLANNING FOOD MIXTURES

The age, sex, height and weight of the patient are determined, and from them the basal calory requirement for twenty-four hours is estimated by the chart Figure 1. The weight is marked on the weight scale and the height on the height scale with pins (needles set in wooden handles). A straight line connecting these two points crosses the surface area scale at the patient's surface area. The normal standard is located on the left hand scale. The line connecting this point with the surface area crosses the calory scale at the basal calory requirement.

If the patient is confined to his bed or room, the basal requirement represents the total food calory allowance. If work is permitted, an extra allowance of from 20 to 30 per cent. of the basal requirement is made. The sum of the basal requirement and the extra allowance gives the total food calories.

The protein quota of the diet is determined from the weight; for adults this may be two-thirds gram, or 1 gm. for each kilogram of weight; for children, 1 gm. or more for each kilogram.

The total food calories and the protein allowance are located on the chart in Figure 2 (Scales M and P). The line, connecting these two points and extended, crosses Scales F and C at the fat and carbohydrate allowances.

Example.—A man, aged 30, 5 feet 10 inches in height and weighing 140 pounds (63.5 kg.) has a surface area of 1.79 square meters and a total basal calorie exchange of 1,670 calories. If he is confined to his room, this represents his total food calory allowance (Fig. 1). The protein of his diet is 42.4 gm. ($\frac{2}{3} \times 63.5$ kg.). On Figure 2 the line connecting 1,670 on Scale M and 42.4 on Scale P, extended, crosses Scale F at 150.2 and Scale C at 22.7. The food mixture consists, therefore, of 42.4 gm. of protein, 22.7 gm. of carbohydrate, and 150.2 gm. of fat.

When the ketogenic and the antiketogenic molecules contained in these food mixtures are calculated by Shaffer's method, the ketogenic ratio obtained lies between 1.6: 1 and 1.7: 1. This ratio avoids the 2: 1 threshold ratio by a small margin. The diets, therefore, accomplish the maximal restriction of carbohydrate with a safe margin from acidosis, and thus the strain on the sugar-burning mechanism is reduced to a minimum. The principle of protein restriction is satisfied, and, although the diets are low-maintenance diets and so accomplish the desired reduction of the basal metabolic rate, they provide enough food calories to satisfy the food requirement of the patient at his reduced metabolic rate. Continuous wastage of body tissue is thus avoided.

Patients handled in this manner have, with few exceptions, done very well indeed. Glycosuria is controlled within a few days, blood sugar and blood fats drop rapidly, and acidosis is promptly checked.

DERIVATION OF FORMULAS FOR COMPUTING LOW CARBOHYDRATE ANTIKETOGENIC LOW-MAINTENANCE DIETS

In this calculation the following assumptions have been made: A molecule of glucose is considered ketolytic for two molecules of fatty acid. The molecular weight of the fat of the diet is assumed to average 874. It is assumed that the glycerol group of the fat molecule behaves in the metabolism as one half a molecule of glucose.

A molecule of fat consists of a glycerol group and three fatty acid groups. From each of these fatty acid groups a molecule of acetoacetic acid is derivable. By the original assumption that a molecule of glucose is ketolytic for two molecules of acetoacetic acid, the glycerol of the fat will ketolyze one of the three fatty acid groups in the fat, leaving two fatty acid groups to be provided for. To avoid ketogenesis, therefore, a molecule of glucose (molecular weight 180) must be available from the carbohydrate or protein of the diet mixture for each molecule of fat in the mixture (Fig. 3).

A gram molecule of glucose, 180 gm., would thus provide for a gram molecule of fat, 874 gm., and a gram of glucose would provide for $874 \div 180 = 4.86$ gm. of fat. The weight of the fat quota of the diet, F, may, therefore, be 4.86 times that of the glucose, G, derivable from the carbohydrate and protein of the diet. Expressed algebraically, $F = 4.86\ G$. To provide the margin of safety, this equation is made $F = 4\ G$.

All glucose derivable from the carbohydrate quota of the diet is available, presumably, for the ketolysis of fat, and no significant error is involved in calculating the carbohydrate as if it were glucose. The glucose resulting from protein metabolism, however, is not all available because some of the amino-acid groups in protein are ketogenic and

19. Boothby, W. M., and Sandiford, R. B.: Nomographic Charts for the Calculation of the Metabolic Rate by the Gasometer Method, Boston M. & S. J. **185**: 337-354 (Sept. 22) 1921.

20. Copies of the nomographic charts may be secured from H. N. Elmer, 1641 Monadnock Building, Chicago. The reproductions in this text (Figs. 1 and 2) are too small to be serviceable. The originals are on a larger scale.

will require a certain amount of glucose to accomplish their ketolysis. One hundred grams of protein would yield to the metabolism 58 gm. of glucose (antiketogenic) and 16 gm. of nitrogen (a neutral substance), leaving 26 gm. of material [100 — (58 + 16)] which might be ketolytic or neutral. To provide a further margin of safety, the assumption is made that these 26 gm. are all ketolytic; they are calculated as preformed acetoacetic acid (molecular weight 102). According to the original assumption that a molecule of glucose will provide for two acetoacetic acid molecules, these 26 gm. would require for their oxidation, 23 gm. of glucose. If x represents the glucose necessary for this purpose and $x : 26 = 180 \div 2 : 102$, $x = 23$. This much of the sugar derivable from 100 gm. of protein is reckoned, therefore, as utilized in the internal combustion of protein, and of the original 58 gm. of glucose, there would remain only $58 - 23 = 35$ gm. available to assist in the fat metabolism. Therefore, 35 per cent. by weight of protein, P, with all the carbohydrate, C, make up the glucose, G, of the equation, $F = 4G$. In consequence, the equation may be rewritten: $F = 4(C + 0.35P)$ or $F = 4C + 1.4P$, Formula 2.

Formula 1, which gives the value of the carbohydrate quota of the diet, is derived from Formula 2 with the help of the additional equation, $M = 4.1C + 4.1P + 9.3F$, wherein M, the total calories of the diet, is represented as the sum of the calories from the carbohydrate, protein and fat. Inserting into this equation the value for F, in Formula 2, we obtain $M = 4.1C + 4.1P + 9.3(4C + 1.4P)$, which simplified and rearranged, becomes $C = (M - 17.12P) \div 41.3$ or, in round numbers, and further simplified $C = 0.024M - 0.41P$, Formula 1.

CONSTRUCTION OF THE NOMOGRAPHIC CHART FOR THE FORMULAS $C = 0.024M - 0.41P$ and $F = 4C + 1.4P$

The directions for the construction of nomographic charts contained in a paper by Boothby and Sandiford[19] were followed. Formula 1 may be rewritten $C + 0.41P = 0.024M$. Formula 2 is $4C + 1.4P = F$. Each of these equations contains three variables, and may be solved by an alinement chart consisting of three parallel scales. By choosing appropriate moduli, the scale for C in Formula 1 may be made to equal in length that for 4 C in Formula 2. Similarly, the scale for 0.41 P in Formula 1 may be made to equal that for 1.4 P in Formula 2. In this manner it is possible to superimpose the two alinement charts and obtain one chart of four parallel scales. This chart will solve both equations with one setting when any two of the four variables are known. The determination of the length of the scales is shown in the accompanying table.

The distance $\overline{cp}$ between Scale C and Scale P is 100 mm. The center of Scale C is on a horizontal line with the center of Scale P. Scale C and Scale P are placed in position and then graduated. As only additions and subtractions are involved and as no logarithms are used, all graduations are uniform. The carbohydrate scale, C, with limits between 0 and 50 gm., is divided accordingly into fifty equal parts, and the protein scale, P, with limits of 10 gm. and 80 gm., is divided into seventy equal parts.

The position of the fat scale, F, between Scale P and Scale C, is calculated from the equations $\overline{pf}/\overline{fc} = m_2/m_1 = 2/1$ and $\overline{pf} + \overline{fc} = 100$ mm. From these equations $\overline{pf} = 2\overline{fc}$ and $\overline{pf} = 100 - \overline{fc}$. Therefore, $2\overline{fc} + \overline{fc} = 100$ and $\overline{fc} = 100/3 = 33.3$ mm. Scale F is, therefore, placed 33.3 mm. from Scale C. The lower limit, 80, of Scale F is located by connecting the point 10 on Scale P with the point 16.5 on Scale C. This is indicated by the formula $4C + 1.4P = F$ or $4(16.5) + 1.4(10) = 80$. Scale F is then graduated from its lower limit of 80 gm. to its upper limit of 300 gm.

The position of the calory scale, M, between Scale P and Scale C is calculated from the equations $\overline{pm}/\overline{mc} = \underline{m_2}/\underline{m_1} = 6.83/4$ and $\overline{pm} + \overline{mc} = 100$. From these equations $\overline{pm} = 6.83\,\overline{mc}/4 = 1.71\,\overline{mc}$ and $\overline{pm} = 100 - \overline{mc}$. Therefore, $1.71\,\overline{mc} + \overline{mc} = 100$ and $\overline{mc} = 100/2.71 = 37$ mm. Scale M is, therefore, placed 37 mm. from Scale C. The lower limit, 800, of Scale M is located by connecting the point 10 on Scale P with the point 15.1 on Scale C, as indicated by the formula $C + 0.41P/0.024 = M$, $15.1 + 0.41(10)/0.024 = 800$. Scale M is then graduated uniformly from its lower limit of 800 calories to its upper limit of 3,000 calories.

DETERMINATION OF LENGTH OF SCALES, DIABETIC DIET CHART

Scale	Limits	Modulus*	Scale Equation	Scale Length
C	50 gm. f_1 (4 C) = 200 0 f_1 (C) = 50 difference 50	$m_1 = 1$ mm. $\underline{m_1} = 4$ mm.	$x = m_1 f_1$ $\underline{x} = \underline{m_1 f_1}$	1 × 200 = 200 mm. 4 × 50 = 200 mm.
P	80 gm. f_2 (1.4 P) = 98 10 f_2 (0.41 P) = 28.7 difference 70	$m_2 = 2$ mm. $\underline{m_2} = 6.83$ mm.	$y = m_2 f_2$ $\underline{y} = \underline{m_2 f_2}$	2 × 98 = 196 mm. 6.83 × 28.7 = 196 mm.
F	300 gm. f_3 (F) = 220 80 difference 220	$m_3 = \dfrac{m_1 \times m_2}{m_1 + m_2}$ $\dfrac{1 \times 2}{1 + 2} = 0.66$ mm.	$z = m_3 f_3$	0.66 × 220 = 145.2 mm.
M	3,000 cals. f_2 (0.024 M) = 52.8 800 difference 2,200	$\underline{m_3} = \dfrac{\underline{m_1} \times \underline{m_2}}{\underline{m_1} + \underline{m_2}}$ $\dfrac{4 \times 6.83}{4 + 6.83} = 2.51$ mm.	$\underline{z} = \underline{m_3 f_3}$	2.51 × 52.8 = 133.1 mm.

* In the construction of Figure 2 the values of the moduli are those which were employed originally in the construction of the scales; the figures do not refer to the chart as reproduced.

SUMMARY

An attempt is made to analyze certain principles underlying the dietotherapy of diabetes and a method is proposed for calculating diets which will embody these principles. Such diets should, it is believed, satisfy four requirements:

1. The diets should lower the metabolic rate of the patient 15 or 20 per cent. below that of an individual of like surface area, age and sex on an unrestricted diet. Under favorable circumstances, this can be accomplished by making the food calories equal to the basal calory requirement of a fully nourished normal person of the same height, weight, age and sex as the patient, and adding an allowance of 20 or 30 per cent. for work if a sedentary occupation is permitted; an extra allowance is not made for the specific dynamic action of food or for movements in bed. This procedure is called low-maintenance in contradistinction to more

rigid dietary restriction termed undernutrition. The advantage of a low-maintenance diet is that enough calories are provided to satisfy the energy requirements of the patient at his reduced metabolic level, thus avoiding continuous wastage of body tissue. It is more satisfactory to base calculation of the basal calory requirements on the four factors of age, sex, height and weight, according to Du Bois' standards for surface area, rather than on weight alone, as is the general custom. The calculation is simplified by a nomographic chart published by Boothby and Sandiford.

2. The protein quota of satisfactory diets should be restricted to the minimal value consistent with the maintenance of nitrogen equilibrium. This requirement is usually met by two-thirds gram for each kilogram of the patient's body weight.

3. In order to reduce as far as possible the sugar strain on the weakened sugar-burning mechanism, the carbohydrate quota of the diet should be restricted to a minimum consistent with safety from acidosis.

4. A safe ratio must be maintained between the molecules of ketogenic material and molecules of glucose contained in the food mixture. With low protein diets, such as those proposed, providing calories equal to the low-maintenance requirement of the patient, the ketogenic ratio which just fails to cause a clinically significant accumulation of acetone bodies, the so-called threshold ratio, is 2:1. This implies that the oxidation of two molecules of acetoacetic acid is accomplished in the presence of one molecule of glucose. The ketogenic ratio of the food mixture should avoid this 2:1 ratio by a reasonable margin of safety.

With the low-maintenance calory requirement, M, of the patient known (nomographic chart, Fig. 1) and the protein quota, P, determined from the patient's weight, the carbohydrate quota, C, and the fat quota, F, of a diet that will satisfy requirements 3 and 4 may be readily determined from the formulas:

$$C = 0.024\ M - 0.41\ P \qquad \text{Formula 1}$$
$$F = 4\ C + 1.4\ P \qquad \text{Formula 2}$$

The calculation of these formulas is simplified by the use of the second chart (Fig. 2). Diets planned in this manner have a ketogenic ratio of 1.65:1. The derivation of the formulas 1 and 2 and the construction of Chart 2 has been described.

ABSTRACT OF DISCUSSION

DR. L. H. NEWBURGH, Ann Arbor, Mich.: The original work on starvation was done by a mere boy on the dog. He fed this dog 100 gm. fat, and he burned 97 gm. In other words, there was no difference in consumption of fat of the fasting dog and the consumption when it was fed an amount greater than was needed. The principle is not quite so simple when one comes to diabetes. The diabetic is undernourished in a severe case. He has no longer the fat stores that the normal dog or human being has. He has a less amount of fat available for the maintenance of his energy needs. He is therefore forced to use protein to a greater extent than if normally nourished. The increase of protein metabolism is accompanied by increased metabolism of carbohydrates. It seems to me that starvation has no advantages over the low calory-high fat diet for the purpose of getting the patient sugar free, because starvation is often a serious matter. A few patients die as a result of starvation. A few patients do not become sugar free, and nearly all patients find it a great hardship. The same results may be accomplished by feeding a low diet from the point of view of energy, a diet which is simply high in fat; in other words, feeding the patient what he would burn in starvation if he were still well nourished. In our experience with 175 consecutive cases, such a plan has succeeded in making every diabetic patient sugar free. We have had a large number of children and a few very young children. No patient has developed an acidosis, and no patient has developed any serious complications. So far as our experience has gone, we are convinced we can accomplish more by this plan than by starvation. That experience is bolstered up by the fact that some of our patients have already been starved before they come to us and not been made sugar free, and then we have an opportunity to try the other plan. And those patients who do not become sugar free on starvation do become sugar free when a diet derived chiefly from fat is used.

DR. NELSON W. JANNEY, Los Angeles: With the consequent complications involved, this scheme of Dr. Wilder's is to be particularly appreciated for simplifying the application of new principles. Dr. Wilder's recent researches have for the first time clearly comprehended the necessity for taking into consideration the endogenous metabolism in the treatment of diabetes. The lowering of the rate, which Dr. Wilder's patients have shown, is borne out by previous practical experience. A number of other workers in diabetes have claimed that diabetic patients have for some years been able to hold that rate and keep up weight and strength. These patients do not always do well after months and years of treatment on the very high fat balance. With the exact amount or ratio, I do not think we can make an absolutely mathematical application in every case.

DR. W. H. OLMSTED, St. Louis: If a ratio holds, and it most certainly does, if one has to feed a low protein diet, one must certainly do with a low carbohydrate diet. This means that one has to send one's patient home on very few calories, in most cases of severe diabetes, or just enough calories to keep him alive. He must get along in most instances on 200 or 300 or 400 calories in a day. It means not only that he must be taught to feed himself properly, but he has to adjust his exercise to his calory allowance, and it must be necessarily very low.

DR. RUSSELL M. WILDER, Rochester, Minn.: This is an extremely complex subject and hard to discuss or handle in the short time available. I want to emphasize that we have not attempted to apply this rate ratio in all our cases, but to the ones in which it was absolutely necessary, in other words, the more severe cases. I know that it is an entirely open question whether it is possible to reduce the carbohydrates below what seems to be necessary for the determination of tolerance. Another point—the protein: There are certain principles worth while applying practically. The diets calculated in this manner, I think most of you will agree with me, are the ones that are best established in the dietotherapy of the disease. I do feel that, perhaps, something can be gained by this more accurate procedure in estimating the number of calories that a patient needs. As long as we can arrive at that food requirement with such ease by means of these charts, it seems desirable to do so. And if the second chart principle could be applied to the construction of a chart to settle any other formula for carbohydrate and protein, it seems desirable to follow it. The description of the derivation of the formula and the drawing of the calculation of the chart will be presented in the published paper.

Sanitary Work in El Salvador.—In his national report for the year 1921, Dr. L. V. Velasco, director general of Public Health in El Salvador, lays stress on the progress accomplished. The department has been divided into six divisions: maritime sanitation and disease prevention, venereal prophylaxis, school infection, vaccination and inspection, sanitary engineering, and legal. Besides there is a department of hookworm disease connected with the department. The department now has district health officers and venereal clinic agents in practically all large cities, and quarantine physicians in all ports, besides a personnel of sanitary agents, inspectors and sanitary police. Dr. Velasco gives credit to the Rockefeller Foundation for the eradication and prevention of yellow fever. The foundation has also contributed to the organization of a bacteriologic laboratory now under way. There was no smallpox during the year, and 153,725 persons were vaccinated.

ACACIA FOR TRANSFUSION *

W. M. BAYLISS, M.A., D.Sc., F.R.S.
LONDON, ENGLAND

Convinced, as I am, of the value of acacia solution for intravenous infusion, when properly used, it seems to me unfortunate that this resource, which has been found in so many cases to be a useful one, should be removed from the list of therapeutic agents owing to incorrect statements, on the one hand, of its physiologic properties and, on the other, to critical acceptance of clinical results which turn out on inquiry to have been due to causes other than the acacia itself.

In order that my remarks may not be too rambling or discursive, it will be best to base them on certain recently published articles in THE JOURNAL A. M. A. and elsewhere. In an editorial,[1] the impression is given that the use of acacia solution is rapidly being given up on account of its deleterious effects. This impression appears to be due, as far as my experience goes, mainly to the hesitation of those who have had favorable results to publish them, just as one would not consider it worth while to publish reports of beneficial effects from drugs whose value is already well established. It happens thus that the good effects obtained from acacia are frequently found out only by casual reference, while the few cases of apparent nonsuccess are freely referred to. There are, of course, exceptions, and I may mention here especially the work of Dr. George Gray Ward, Jr., and Dr. Lilian Farrar at the Woman's Hospital of New York, who state that they have used the solution in some 400 odd cases and have had "no bad results of any description," since the solution was properly prepared, and speak in high terms of its value.[2] This fact alone, in combination with the experience in the British army to be mentioned presently, suggests that some faulty method either of preparation or administration lies at the bottom of the bad results, or perhaps that some patients were in so hopeless a state that any mode of treatment would have had the same effect. The practical importance of clearing up doubts as to the safety of acacia solution is that it is capable of affording help at times when the transfusion of blood is impossible. It is obvious that there are many cases in which immediate measures are urgent. The experience of the war showed that the sooner after injury symptoms of shock were treated, the better the chance of survival. Donors of blood cannot always be found at a moment's notice, and even if blood should ultimately be necessary, a preliminary injection of acacia solution may tide over a critical period. The solution should, indeed, always be kept ready for use in the operating theater, and its low cost renders economy unnecessary.

The first objection made in the editorial is that acacia causes agglutination of corpuscles. The question was discussed at some length in my article[3] of 1920. Apart from the fact that this phenomenon is found only in some cats and is absent in man (Kruse does not state how his experiments were made, it is possible that some impurity was present in his solutions, and even sucrose agglutinates by some methods of test), it occurs in the cat only when the blood is left to stand. It is purely mechanical and is never followed by hemolysis. Thus, I found that the thick deposit of agglutinated corpuscles, formed after standing for twenty-four hours, could be injected into a cat without any ill effects whatever. No evidence has been brought in support of the hazy statement that changes may occur in the acacia solution that make it more likely to cause agglutination in man. I am not prepared, however, to deny the possibility; but, even so, there is no ground for apprehending risk on this account. Connected with this problem is the statement that capillary embolism has been produced. It is somewhat astonishing that anything that happens to a patient subsequent to the use of acacia solution is likely to be attributed to the treatment. A case in point came under my own notice. It was stated and accepted that death was due to capillary embolism. I requested the pathologist who was responsible for the necropsy to look up his notes. He found that there was no capillary embolism, and that death was not in any way connected with the acacia infusion.

I will leave readers to judge of the reliance to be placed on the production of "anaphylactoid" symptoms in guinea-pigs, and will only mention that experiments made in the usual way to test production of true anaphylaxis in cats and guinea-pigs gave negative results in my hands.

On looking up the experiments of Foster and Whipple,[4] one finds that, so far from acacia interfering with the proper return of the fibrin to its normal value after hemorrhage, it is stated that its effect is the same as that of serum, bringing the fibrin gradually to its normal, whereas Locke's solution causes an overproduction. I have never myself observed any retardation of clotting, beyond what must naturally occur as a dilution of the plasma, which would be small in any therapeutic use of the method.

It is impossible to discuss reported cases of death from its use, without detailed descriptions.

I pass on to speak of the use of acacia solution during the war. Henderson and Haggard[5] refer to the present writer and his collaborators as having "tried to introduce it." It may be of interest to recall the fact that, at the end of the war, 75 liters a day was being supplied to the British army in France from the base hygiene laboratory at Boulogne. Just after the armistice, a conference of consulting surgeons and others was called in order to discuss the use of acacia solution. It was agreed that no harm was to be apprehended from its proper use, while stress was laid on the importance of the purity of the acacia and the method of preparation. There was difference of opinion as to the relative values of blood and acacia; while some present stated that they had found no difference, others thought blood superior. The reports of Capt. Oswald Robertson, to which reference is made in the editorial, were considered at this conference, and it was recognized that the unfavorable results in the American army at the later stages were due to the severe state of shock in which many of the patients arrived after long transport. Space forbids detailed description of what this means. It must suffice to recall the production of a permeability of the capillaries, which, as Keith found by blood volume measurements, does not allow the retention in the circulation of any injected fluid, even

* From the Institute of Physiology, University College.

1. Deleterious Effects of Acacia for Transfusion, editorial, J. A. M. A. **78**: 730 (March 11) 1922.
2. Discussion on paper by Dr. Lilian K. P. Farrar, American Gynecological Society, Am. J. Obst. **1**: 1 (Oct.) 1920; Surg., Gynec. & Obst. **32**: 328 (April) 1921.
3. Bayliss, W. M.: J. Pharmacol. & Exper. Therap. **15**: 66 (March) 1920.
4. Foster and Whipple: Am. J. Physiol. **58**: 405, 1922.
5. Henderson, Yandell, and Haggard, H. W.: Hemorrhage as a Form of Asphyxia, J. A. M. A. **78**: 697 (March 11) 1922.

of blood. Captain Robertson concludes that when unsuitable cases were excluded, the effects of acacia were definitely good. "Chills" sometimes occurred if the solutions were too cold or the injection too rapid. But Sir Cuthbert Wallace of the First Army, who had used acacia solution from its first introduction, stated on another occasion that he was not afraid of chills, while the general impression seemed to be that they were not more common with acacia than with blood. The importance of careful preparation of the solutions led to the establishment of a special laboratory under Captain Telfer for proper carrying out of the process.

Stewart's [6] statement that the use of acacia is "unphysiologic" refers, as he himself says, merely to its viscosity, if looked on as an important property. In my paper already referred to, I called attention to the comparative unimportance of this factor, and I am quite prepared to admit that it may be a disadvantage under certain conditions. It is remarkable, although I attempted to explain the matter in the place mentioned, how little it is realized that the really essential propery of acacia is that it is a colloid with an osmotic pressure. Since the blood vessels are impermeable to colloids, this osmotic pressure can show its effect in attracting or retaining water in the blood. It must therefore be present in such an amount as to give a value equal to that of the plasma proteins. This means between 6 and 7 per cent. of acacia. The viscosity, owing to the extra work put on the heart, is a disadvantage; but it is greatly reduced by the process of sterilization in the autoclave, and, after all, it is only at its maximum equal to that of the blood. It may, however, be recalled that it is owing to the viscosity of the blood that a fairly high arterial pressure can be maintained. In respect of two important organs, the brain and the heart, the nutrient circulation depends on the height of this pressure, since these organs are scarcely, if at all, supplied with vasomotor nerves. Markwalder and Starling showed that the heart begins to suffer if the blood pressure falls below about 80 to 90 mm. of mercury. Hence, if under any pathologic condition it falls below this value, the viscosity of the injected fluid may be of assistance. Fischer and Hogan, in their addition of a small quantity of gelatin to a fluid for intravenous injection, did not realize the part played by osmotic pressure, and appear to have been under the impression that the presence of a very small amount of a colloid would, by its "imbibition" of water, prevent escape to the tissues. There are, of course, other objections to gelatin, which need not be further referred to here.

The work of Henderson and Haggard requires rather more detailed consideration. It would be absurd to suppose that any artificial fluid could even temporarily replace the whole of the blood, that is, if the red corpuscles are of any importance at all. It is also clear that there must be some limit below which the supply of red corpuscles to the tissues would be inadequate for their oxygen supply. Various data, clinical and experimental, place this limit at about 50 per cent. of the normal number. In other words, if the volume of the blood is kept up, the corpuscles may be diminished to half their number without serious results. Doubtless, if exercises were taken, there would be signs of anoxemia.

Now, the amount of blood removed in Henderson and Haggard's experiments was far in excess of this. No advocate of the use of acacia solution has suggested that it can replace more than one half of the blood. In the experiment given in Chart 2 of the paper in question, the original volume of the blood would be, on the most accurate determinations, about 7.3 per cent. of the weight of the animal, i. e., 800 c.c. The amount removed was 659 c.c.; that is, 80 per cent. Of course, a certain quantity of fluid was absorbed from the tissues during the hemorrhage; but, even thus, much more than 50 per cent. was taken away. In fact, the degree of hemorrhage was greatly in excess of anything that is likely to occur in practice, except under the most unusual conditions. According to my experience, it is surprising that acacia solution kept the animal alive until next day. A comparable degree of hemorrhage in man would be a loss of some 5 liters of blood. Comparing Chart 2 with Chart 1, it seems to me that the fallacious nature of the "method of standard hemorrhage" is obvious. A removal of only 44 per cent. of the blood in the animal reduced the blood pressure to the same level as that of the previous dog, but the cases are in no way parallel. The correct way to do the experiments would have been to determine the blood volume in each case and then remove the same proportion of blood. The blood pressure is no guide. It depends on the reaction of the vasomotor center. If this is adequate, a patient suffering from severe traumatic shock may have a fairly high blood pressure. It is the volume of the blood, not the pressure, that is the determining factor. If this is large enough, the tissues do not suffer from asphyxia, even after considerable hemorrhage. The experiments of Gesell showed that the increased rate of flow was more than sufficient to compensate for the dilution of the blood; except, of course, in the exceptional conditions of Henderson and Haggard's experiments.

But even under the drastic hemorrhage of these experiments, the value of acacia solution is shown in the table given. Taking those cases in which it is stated that there was recevery, we find that blood amounting only to 3.7 per cent. of the body weight, that is, less than one half of the amount present, can be removed without death, in the absence of treatment, whereas if the blood is replaced by acacia solution, 5.1 per cent. can be safely removed.

The statements of Kruse [7] require a few remarks. The first point is that a simple calculation would show that the osmotic pressure of even 25 per cent. acacia is not high enough to balance that of the contents of the red blood corpuscles; so that they must swell and burst. In practice, of course, either sodium chlorid or glucose is added to give the requisite osmotic concentration, and no hemolysis is then produced. It seems to be frequently forgotten that the membrane of cells is impermeable to salts and glucose, whereas the composite walls of the blood vessels are permeable to these and impermeable only to the large aggregates of colloids. Thus, it is only the osmotic pressure of the latter that comes into play in respect of escape of fluid from the circulation. The question of agglutination has been referred to above. The diminution of rhythmicity in isolated smooth muscle seems of little importance, but it is possible that the condition in the presence of acacia may be more normal than the exaggerated activity in certain salt solution. The decrease of urinary secretion depends entirely on the previous state. If diuresis has been induced by water or saline,

6. Stewart, G. N.: Am. J. Physiol. **49**: 233 (July) 1919.

7. Kruse: Am. J. Physiol. **49**: 137, 1919 (Proc.).

it is clear that it will be brought back to normal if a colloid equivalent to those of the blood is added. The rate of filtration through the glomerulus under a given arterial pressure is inversely proportional to the counteracting osmotic pressure of the impermeable colloids. Of course, this is an important fact in the comparison of saline and acacia solutions as regards their relative efficacy in maintaining the volume of the blood after intravenous injection. Blood and acacia solution behave in the same way, but have not the diuretic action of Ringer's solution. On the other hand, if there is suppression of urine owing to a low blood pressure, the rise of this in consequence of the infusion of acacia solution restores the secretion. This is easily shown experimentally, and has been found to occur in cases of blackwater fever by Dr. Burkitt of Nairobi, who uses the method with success. There is some contradiction with regard to its use in cholera. As is well known, Sir Leonard Rogers uses 2 per cent. saline solution, but repeated injections are necessary. He has not found acacia solution to give good results. On the other hand, a medical officer who was with the British army in Mesopotamia informs me that it was the routine treatment there.

Kruse admits that the blood volume is well maintained.

If 25 per cent. solutions are used, as Erlanger points out, they must be given very slowly in order to mix well with the blood. The 6 per cent. solution mixes freely. The statement that acacia is not tolerated after hemorrhage must refer to the simple 25 per cent. solution without salt, because it is in direct contradiction with the experience of those who have used 6 per cent. in saline. I fail to understand the meaning of the statement that pharmacologic evidence does not support its use. There seems to be some suggestion of the false idea that acacia has a druglike action, whereas it is a completely inert substance chemically, like the serum proteins, and its action is purely mechanical. The same view of a druglike action appears to be the meaning of the last sentence in the editorial. This is the place to refer briefly to the use of concentrated (25 per cent.) acacia solutions in small quantities, as recommended by Erlanger. Such solutions, by attracting water from the tissues, augment the volume of the blood, as do the larger amounts of the more dilute solutions. If there is plenty of fluid in the tissue spaces, the effects may be very similar. But, since the object is to increase the volume of the blood in circulation, and fairly rapidly, it seems to me to be preferable to use the more dilute solutions. In practice, however, it appears that either method is effective.

In experimental work on shock, I found that the first injection of acacia solution may appear to have little or no effect, whereas a second, comparatively small one, led to recovery. In view of this fact, it was recognized at the Boulogne conference that the statements as to blood transfusion being sometimes effective after acacia had failed were of no value, since, if the second injection had been acacia instead of blood, it might also have been effective. There is a general remark which may be made in connection with comparisons between blood and acacia. If there was an impression that the former was preferable, even in mild cases of hemorrhage or shock, it was only natural that it should be reserved for cases that promised to benefit, whereas acacia solution would be given in the more hopeless cases, which did not appear likely to repay the expenditure of blood.

It is a matter of the greatest importance to use good samples of the acacia. They should be in clear, nearly colorless lumps. If required to be in powder, the lumps should be selected first and then ground. The method of preparation of the solution is given by Dr. Farrar, and in more detail in Telfer's article in Report No. 25 of the British Medical Research Council. It is probably best to purchase the solution sterilized in bottles. The Medical Research Council has made arrangemetns with Messrs. Evans, Sons, Lescher & Webb of Runcorn to supply these in England at a cheap rate.

The commercial powdered samples of acacia are usually adulterated and useless. During the war, the British army in Italy had bad experience with acacia solution. At my request, a sample of the acacia was sent me. It was in powder and left a large, dirty, insoluble deposit. The solution was quite useless when tested on cats. Another experience is instructive. Dr. Burkitt of Nairobi, whose prolonged favorable use of acacia solution in blackwater fever has already been mentioned, suddenly found his cases going to the bad. He wrote to me for suggestions, but before my letter had time to reach him, I received a further one from him stating that he had discovered the cause of his failure in the fact that the acacia used for the later solutions had become acid, owing to decomposition in the hot climate. It is scarcely probable that the acidity was the only change that had occurred. If the stock of acacia is kept dry in closed vessels, it is unlikely that such decomposition would occur in cooler climates; but the circumstance tends to emphasize the conviction that bad results are mainly due to bad preparations. It would seem scarcely necessary to remark that the same care should be given to the intravenous use of acacia solution as is used in the transfusion of blood.

CORRELATION OF BASAL METABOLIC RATE WITH PULSE RATE AND PULSE PRESSURE *

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Extreme deviations from the normal basal metabolic rate are accompanied by very definite and easily recognized alterations in other functions. Some of these, such as changes in blood pressure, pulse rate and respiratory rate, can be expressed quantitatively and utilized as rough guides to fluctuations in the metabolic rate. This study concerns itself only with pulse rate and pulse pressure in their relationship to the basal metabolic rate. It will be shown that these two measurable functions of the circulation tend to vary directly with the basal metabolic rate when they are obtained under the same "basal" conditions as are standard in basal metabolic work.

There are many references in the literature to the increased pulse rate associated with increased metabolic rates. Benedict and Harris [1] discuss this subject extensively. Sturgis and Tompkins,[2] and more recently

* Read before the Section on Practice of Medicine at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Harris, J. H., and Benedict, F. G.: A Biometric Study of Basal Metabolism in Man, Pub. 279, Carnegie Inst., Washington, 1919.

2. Sturgis, C. C., and Tompkins, E. H.: A Study of the Correlation of the Basal Metabolism and Pulse Rate in Patients with Hyperthyroidism, Arch. Int. Med. 26: 467 (Oct.) 1920.

Peterson and Walter,[3] have published figures and charts emphasizing the parallel increase of pulse rate and basal metabolic rate. It has now become fairly well established that the tachycardia of hyperthyroidism is in part an expression of a general physiologic law.

The relationship between blood pressure and the basal metabolic rate has not been so extensively studied as that existing between pulse rate and basal metabolic rate. Only the difference between systolic and diastolic pressure or the pulse pressure will be considered at this time. Increase in pulse pressure accompanying elevated basal metabolic rate has been recorded by many observers, notably those of the Mayo Clinic. This association has been commented on by Boothby,[4] Beall [5] and others.

As a relation exists between basal metabolism, on the one hand, and the pulse rate and the pulse pressure, on the other, the question arises as to how exact and constant these relationships are, and with what precision one may estimate the basal metabolic rate from these other findings. An attempt to answer this question was made by applying the statistical method of study to a series of observations obtained under uniform conditions.

This series consists of 300 determinations made over a period of a year and a half. The data were obtained from three different sources, namely, the basal metabolic departments of St. Luke's Hospital, Stanford University Hospital and the San Francisco Hospital, a Sanborn-Benedict portable calorimeter being used in all three laboratories. About one half of the determinations were made by the writer, the others being made by four personally trained physicians serving first and second hospital years. Blood pressure readings were taken on all patients on whom a basal metabolic test was made, the reading being made in the resting interval between two ten minute breathing tests. Frequent records of the pulse rate were made throughout the breathing periods. Thus, the basal pulse rate and basal blood pressure were ascertained at the same time the basal metabolic rate was determined.

The only selection made of the material was elimination of all cases which showed changes in the pulse rate or blood pressure due to an obvious pathologic condition in the cardiovascular-renal system. The patients ranged in age from 15 to 55 years, blood pressure changes being so frequent in patients over 55 as to render sphygmomanometer readings of uncertain significance in this work. With the exception of young people with marked exophthalmic goiter, all patients showing basal systolic pressures of 160 or above are excluded on the basis that such hypertension is due in most instances to pathologic changes in the cardiovascular-renal system, and is not a physiologic response of the circulatory system to increased metabolism. There were also omitted from this series all thyrotoxic patients with auricular fibrillation or heart block. Electrocardiographic tracings were obtained in more than two thirds of the cases.

The data were arranged according to the basal metabolic rate into fourteen classes, the class intervals being made at each 10 per cent. change in the rate below or above the normal standard. Inspection of the accompanying table shows that the average pulse rate and pulse pressure readings tend to increase as the metabolic rate increases. Since averages show only tendencies, it is desirable to know the highest and lowest figures in the series, which are given in the table. These show a considerable range in most of the classes, produced, partially at least, by a few individuals who deviate in a significant manner from the general rule. Whereas most patients responded to an elevated metabolic rate with an increase in both pulse rate and pulse pressure, a few showed considerable increase in the one, with little or no change in the other.

PULSE RATE AND PULSE PRESSURE ARRANGED IN FOURTEEN CLASSES ACCORDING TO METABOLIC RATE

Basal Metabolic Rate, per Cent.	Number of Observations	Pulse Rate			Pulse Pressure		
		Average	Maximum	Minimum	Average	Maximum	Minimum
100 to 90.1	2	120	130	110	105	110	100
90 to 80.1	0	...	...	...	...	...	...
80 to 70.1	1	122	...	...	78	...	...
70 to 60.1	4	94	100	85	88	90	62
60 to 50.1	7	98	114	82	54	70	36
50 to 40.1	9	96	124	80	58	90	38
40 to 30.1	10	92	112	76	50	64	34
30 to 20.1	22	80	100	62	46	62	35
20 to 10.1	50	76	100	54	44	70	22
10 to 0.1	81	72	100	50	43	64	26
0 to —9.9	72	71	94	46	40	56	18
—10 to —19.9	31	66	82	48	36	54	20
—20 to —29.9	9	57	70	50	37	50	24
—30 to —39.9	2	72	88	56	29	36	22
Total.....	300						
Coefficient of correlation..		0.69			0.62		

In discussing the relation of pulse rate and basal metabolic rate, Sturgis and Tompkins [2] say: "There are, however, many individual discrepancies. These occur particularly in a group of cases in which the metabolism is greatly elevated and the pulse rate relatively slow." An example from this series of a similar apparent discrepancy is Case 164, with a basal metabolic rate 30 per cent. above normal and a pulse rate of 70. The pulse pressure, however, was 62.

The trend of the average pulse rates and pulse pressures having been established, and it being noted that individual discrepancies in one were often accompanied by a discrepancy in the other but in the opposite direction, the problem then presented itself of combining these two in such a manner as to smooth out the apparent discrepancies. There are various means of combining these two values, but the one which seemed to present the greatest advantages was that which utilized the quantitative measure of relationship, between the basal metabolism, on the one hand, and the pulse rate and pulse pressure, on the other. I therefore computed the coefficients of correlation between these various factors, utilizing standard statistical methods. This coefficient is calculated on the basis of unity representing perfect correlation. The accepted methods of handling such statistical data were applied, and it was learned that the coefficient of correlation for pulse rate and basal metabolic rate was 0.69; for pulse pressure and metabolic rate it was 0.62. For obvious reasons already commented on, the coefficient for pulse rate and pulse pressure was much lower, namely, 0.43.

Quantitative measure of the degree of correlation between pulse rate, pulse pressure and basal metabolic rate having been obtained, it becomes possible, by application of statistical methods, to derive a multiple prediction formula by which the basal metabolic rate may be estimated from the known basal pulse rate and

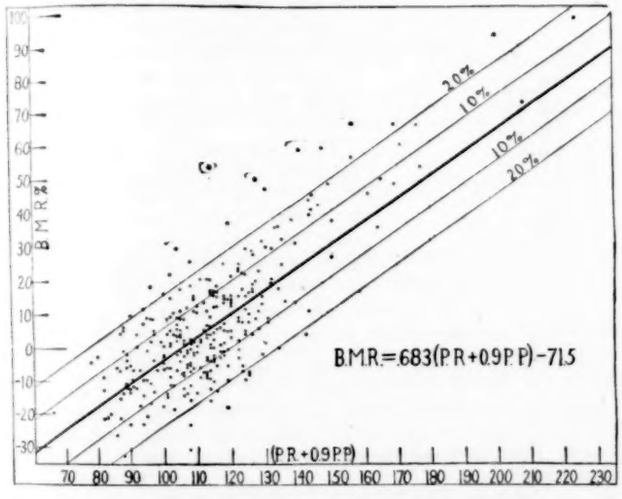
3. Peterson, Anne, and Walter, Will: Basal Metabolism and Ideal Weight and Pulse Ratios as Shown by the Findings in More Than Twenty-Five Hundred Observations on about Twelve Hundred Subjects: A Preliminary Report, J. A. M. A. 78: 341 (Feb. 4) 1922.

4. Boothby, W. M.: Adenoma of the Thyroid with Hyperthyroidism (Toxic Adenoma); History of the Recognition of This Disease as a Clinical Entity; A Study of the Symptomatology with Basal Metabolic Rates, Endocrinology 5: 1 (Jan.) 1921.

5. Beall, C. A.: Basal Metabolism in Borderline Cases, J. A. M. A. 76: 1639 (June 11) 1921.

pulse pressure. This formula is: B. M. R. = 0.683 (P. R. + 0.9 P. P.) — 71.5. An idea of the accuracy of predictions based on this formula is essential before it can be used intelligently and with full knowledge of its limitations. This is represented graphically by the accompanying chart, on which the 300 observations of this series are represented as dots in relation to the line calculated from the formula. The lighter, parallel lines delimit areas within which observed rates deviate less than 10 and 20 per cent. from the calculated rate. From this the formula appears to predict the basal metabolic rate within 20 per cent. of the observed rate in 91 per cent. of the cases, and within 10 per cent. in 60 per cent. of the cases. Great accuracy of prediction is difficult to attain because of the individual variation of pulse pressure and particularly pulse rate which occurs even in health.

Throughout this study it has been assumed that the relationship of pulse rate and pulse pressure to basal metabolic rate is a linear one. Such an assumption seemed justified by the data, though the possibility that a curved line might express the relationship equally well is not forgotten.



The dark line represents the prediction formula B. M. R. = 0.683 (P. R. + 0.9 P. P.) — 71.5. The dots represent the 300 observations from which the formula was derived. The first and second light lines parallel to and on both sides of the line of the formula are 10 and 20 per cent. lines, respectively.

Aside from any value they may possess in prediction of the metabolic rate, the basal pulse rate and pulse pressure have greater usefulness and may be utilized with more accuracy in following hypothyroid and hyperthyroid patients under treatment. In individual cases the variations in these measures at different times are significant, provided always they are obtained under basal conditions. Their usefulness could be enhanced by first determining them simultaneously with the basal oxygen consumption. By thus establishing their relationship to the basal metabolic rate at one observation, future estimations of the basal metabolic rate of that individual could be determined by ascertaining the basal pulse rate and pulse pressure.

CONCLUSIONS

The pulse pressure and pulse rate vary in the same direction as the basal metabolic rate. Most individuals respond to variations in the metabolic rate with proportionate changes in both pulse rate and pulse pressure; a few show disproportionate changes in the one with little or no change in the other. A combination of the two gives a better measure of the circulatory system's response to variations in metabolic rate than either one alone. Basal pulse rate and pulse pressure combined can be used clinically as a guide to ascertain the direction and estimate roughly the amount of change in the basal metabolic rates of patients under treatment for hypothyroidism and hyperthyroidism.

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ABSTRACT OF DISCUSSION

DR. WALTER M. BOOTHBY, Rochester, Minn.: There is no doubt that there is a correlation between the pulse rate and pulse pressure with the basal metabolic rate as worked out by Dr. Read. The correlation, on the whole, will be of considerable advantage if used in conjunction with basal metabolism determinations. It will be of much less value in determining the original basal metabolism or the determination of that in a patient. Dr. Read gives a correlation roughly of between plus and minus 10 per cent. of successful prediction in 60 per cent. of the cases. I have tried several series, as a rule, and in from 60 to 70 per cent. the guess comes within ten points of the basal metabolism rate. The point is that, using the pulse rate, the pulse pressure and the general impression of the patient, after seeing a large number of records of basal metabolism rates, one becomes able to interpret the basal metabolic rate readily in the same way that an expert clinician can guess the temperature in 80 per cent. of the cases. Just as we do not require the temperature taken regularly on all patients, neither do we need the basal metabolism rate taken on a large number because it can be estimated with accuracy. Mistakes will, however, be made in the borderline cases, in which it is of greatest importance not to make such mistakes.

DR. J. MARION READ, San Francisco: What Dr. Boothby says is quite true. It is often possible to guess the basal metabolic rate with a fair degree of accuracy after one has had a fair amount of experience with determinations. Most of us, as the general practitioner, have not had the experience that the house officers at the Mayo Clinic have had. I believe that the pulse rate and the pulse pressure can be fairly well determined by most practitioners, and I think that they can be utilized as an aid by men who wish to guess the basal metabolic rate. An advantage of using those two measures of the circulatory system is that they can be done every morning if this should be necessary, without the disturbance to the patient which necessarily follows any determination of the metabolic rate.

Two Years' Work in Mouth Hygiene.—According to a report in *Health News*, April, 1922, the board of education and the health department of New York City, in 1919, gave permission to the Association for the Improvement of the Condition of the Poor to carry on an intensive program in mouth hygiene for the schoolchildren of a particular district. Up to July, 1921, a total of 3,911 children were treated, and for 38 per cent. of these the work was completed. The children were divided into three groups: those who had one cleaning, those who had two cleanings and those who had three or more cleanings. There was a steady decline with each cleaning in the number of cavities found and an increase in the number of children with no cavities. On the first cleaning, only 5 per cent. of the children had no cavities, while 42 per cent. had no cavities on the third cleaning. Records of the time consumed and the cost of the work in the district were kept over sufficiently long periods to enable the association to compute the per capita time consumed in, and the cost of, the various operations. Estimated on 6,369 permanent and 1,108 temporary teeth, the average cost for a complete filling is 70 cents. Estimated on a basis of 3,136 children, the average cost per child of the complete dental program is $4.13.

Clinical Notes, Suggestions, and New Instruments

THE PROJECTION OF ROENTGENOGRAMS *

O. V. BATSON, M.D., CINCINNATI

The desirability of using the original roentgenogram for the purpose of projection is generally recognized. Recently Dr. Norval H. Pierce [1] described his method of cutting mastoid pictures to the size of lantern slides and then projecting as usual.

Any of the projection instruments permitting the use of transparencies in the horizontal position afford a most satisfactory method. The size and expense of this type of instrument limit its application, but when available it leaves little to be desired. I have used for some time the "universal projection apparatus" made by Leitz for this purpose. This apparatus has a horizontal condenser of sufficient size to cover the essential parts of anteroposterior or lateral views of the head. The large water cell prevents the heating of the roentgenogram during prolonged demonstration or study.

An additional advantage is the fact that any size plate or film may be used without mutilation; the operator moves the negative about to show the desired portion. No holder is required, for the negative lies flat.

Another method, not quite so satisfactory, is to use a photographic enlarging apparatus. The illumination is not so brilliant, and a special vertical holder is required. The usual instruments accommodate a plate or film 5 by 7 inches or smaller. Neither of the foregoing methods introduces anything essentially new in projection, and possibly they are in use by others at present.

AN UNUSUAL GUNSHOT WOUND OF THE INFERIOR VENA CAVA †

W. M. SHEPPE, M.D., CHARLOTTESVILLE, VA.

Mr. S. received an accidental gunshot wound of the abdomen, the bullet, fired from a 0.38 caliber pistol, entering the abdominal wall in the midline about 1 inch (2.5 cm.) above the umbilicus. The patient was transported over 15 miles of rough country road to the university hospital. Laparotomy disclosed a moderate intra-abdominal hemorrhage; several perforations in the small intestine, and a nick in the wall of the stomach near the pylorus. The wounds were closed, the injury to the intestine being so extensive that a resection with lateral anastomosis was necessary. A rapid palpation of the abdominal cavity was made to determine the resting place of the bullet. It was found lying in front of the vertebral column, just above the lumbosacral prominence. As the surgeon attempted to grasp the bullet, it escaped from his fingers and disappeared. A massive hemorrhage which filled the lower abdomen ensued. The source of hemorrhage was a hole in the anterior wall of the vena cava, just above its point of bifurcation. The opening was temporarily closed, but the bullet was not again discovered. The patient reacted well following the operation, but died several days later. Careful auscultation before death failed to disclose any signs of cardiac dysfunction.

Necropsy disclosed an acute generalized peritonitis. There was a jagged opening in the anterior wall of the inferior vena cava, just above its point of bifurcation. The hole was about 1 by 2 cm., and was closed by a large thrombus. The absence of blood in the peritoneal cavity evidenced the fact that the closure of the cava had been successful and that no postoperative hemorrhage had occurred. The bullet was found lying in the right ventricular cavity near the apex of the heart. It was partially covered by a heavy deposit of fibrin, which served to fix it firmly in position. The tricuspid valve leaflets were not injured. An infectious infarct was found in the apex of the right lung.

The cause of death was acute generalized peritonitis, associated with acute anemia.

SUMMARY

The case is of interest from several standpoints:

1. No signs of the presence of the bullet in the heart were obtained by auscultation.

2. The bullet, at the end of its circuitous course through the abdomen, barely perforated the wall of the inferior vena cava, remaining in that position and effectually controlling what would have been, without doubt, a fatal hemorrhage. Furthermore, it was not displaced from its precarious lodgment in a 15 mile drive over a rough road.

3. When the bullet eluded the surgeon's grasp, it fell back into the inferior vena cava and traveled along that vessel until it reached the heart, where, passing through the tricuspid valve, it became permanently lodged against the right ventricular wall.

A METHOD OF THREADING WITH SILKWORM GUT

MAXWELL QUACKENBOS, M.D., NEW YORK

In the employment of silkworm-gut sutures for the apposition of skin surfaces, it is disconcerting to have the needle, after transversing one or more layers of the abdominal wall, emerge without the suture. Apart from the annoyance of such an incident, the actual time factor in the operation is prolonged by the required handling of the suture material. In the illustration, a method of threading particularly applicable to silkworm gut is diagrammatically shown which will avoid the occurrence of the aforesaid incident.

Method of threading needle.

The eye of the needle is threaded in a spiral, or "rethreaded," and the suture in situ is drawn tight. Artery forceps may then be placed near the termination of the long end of the suture, and the entire tool safely passed fixed in a needle holder. To remove the needle, the suture is firmly grasped adjacent to its point of exit, and sudden traction made on the needle in an upward direction. If the needle is not threaded in a spiral, traction will tend to lock the suture. The spiral thread is superior to the usual single thread and twisting. The method is not new: I first saw it used in foreign hospitals.

A CASE OF WOUND DIPHTHERIA *

B. L. ARMS, M.D., AND PEARL GRIFFITH, B.E., JACKSONVILLE, FLA.

While cases of wound diphtheria occur occasionally, it is believed that this case is of sufficient interest to report.

March 22, we received swabs, sent by Dr. Joseph Halton of Sarasota, Fla., from the throat of a patient, together with swabs from the abdominal incision four weeks after treatment. Direct examination of the swabs from both the throat and the abdominal incision revealed typical diphtheria bacilli, and the cultures from each were of the A, A′ and C types by the Westbrook classification. We reported a positive culture from the throat, and organisms that were morphologically diphtheria from the abdominal incision; but we desired to test them further before giving the final diagnosis.

Both cultures were then streaked out and isolations made, transplants were made in broth, and pigs were inoculated, 0.5 per cent. of the body weight being used. We used one strain from the throat and two strains from the abdominal culture, inoculating subcutaneously on one side of the abdomen for the test. Controls were also inoculated at the same time; but these received antitoxin immediately on the opposite side of the abdomen.

The three test pigs were found dead the second morning after the inoculation, and cultures from the site of the injection showed typical diphtheria bacilli from each of the pigs, while the pigs protected with antitoxin have shown no con-

* From the Anatomy Department, University of Cincinnati College of Medicine.

1. Pierce, N. H.: An Original Method for Lantern Slide Projection of Roentgen-Ray Films of the Mastoid, J. A. M. A. 78: 1539 (May 20) 1922.

† From the University of Virginia Department of Medicine.

* From the Laboratory of the Florida State Board of Health.

stitutional symptoms, although there was a local reaction, and in one instance a small slough.

The report was then made and the clinical side of the case requested, which Dr. Halton kindly furnished.

CLINICAL FEATURES

A woman, aged 54, schoolteacher from New York, began flowing in November, 1919, and had intermittent periods of bleeding, which were treated chiefly by ovarian extracts for seven months. A diagnostic curettage, Feb. 1, 1922, led to a diagnosis of adenocarcinoma from the scraping. February 17, a hysterectomy was performed at a hospital in a nearby city. When the wall was closed, four strands of silkworm gut were left in the lower end of the incision for drainage. Recovery was uneventful. Drainage left a hole about the size of a silver dollar. The patient left the hospital about four weeks after the operation, Dr. Halton seeing her the evening before she left.

Four days later he was called to her home and found a "nasty hole in the abdomen covered with white membranes," which looked to him to be diphtheritic. Examination of the throat disclosed a membrane on the right tonsil. He immediately had the patient removed to his hospital, took swabs, and without waiting for reply gave 10,000 units of antitoxin, repeating the dosage during the next two days. "The result was like magic. The membranes disappeared and the infected hole healed rapidly."

Special Article

"THE WILL TO BELIEVE"

JOSEPH JASTROW
Professor of Psychology, University of Wisconsin
MADISON, WIS.

Extraordinary Development of Tactile and Olfactory Senses Compensatory for the Loss of Sight and Hearing

Dr. T. J. Williams reported the case of Willetta Huggins, 17 years of age, blind and deaf, an inmate of the Wisconsin School for the Blind, and exhibited the patient. Miss Huggins gave some remarkable demonstrations in naming colors by the sense of smell. For instance, a skein of wool composed of different colors was handed to her and she named the colors correctly by passing the skein of wool before her nose as dark blue, yellow, pink, green, blue, fiery red, brown and white.

A bunch of paper flowers (colored) was handed to her and she named the colors correctly as white, yellow, pink, lavender, purple, red, tomato red, and yellow. She was handed a small blotter used by the official stenographer, one side of which had a pink color, and the other side was white, with a blue border. Miss Huggins named correctly the colors on this blotter. One end of a wooden pole, about 12 feet long, was placed on top of Dr. Robert H. Babcock's head, while Miss Huggins took hold of the other end, and repeated every word Dr. Babcock said to her correctly. By the sense of touch she told the denominations on a one dollar bill, a ten dollar bill, a twenty dollar bill, and a one hundred dollar bill correctly.

Dr. Robert H. Babcock said he knew of the case of a boy in Philadelphia, totally blind, who, if led along a path, four feet distant from trees, could count every tree he passed. He said that blind people develop a peculiar facial sensation which enables them to tell when they approach an object, whether it was a human being or anything else.—*Official Bulletin of the Chicago Medical Society* **21**:29 (June 3) 1922.

[NOTE.—Because of the interest aroused by this case when it was presented before the Chicago Medical Society, and knowing that Professor Jastrow had had opportunity to examine the patient, THE JOURNAL asked him to comment on the demonstration.—ED.]

THE CASE OF WILLETTA HUGGINS

The demonstration before the Chicago Medical Society of a young girl presumed to present unusual types of sense perception, and the impression made upon men of the medical profession that there was solid ground for such conclusions, justify the present statement. The claim was put forward that this girl is able to tell colors by the sense of smell and is further able to understand spoken language, provided there is a connection between her fingers and the head or larynx of the speaker, either directly or through the medium of a wooden rod. This claim means that she possesses so acute a vibratory sense through tactile organs as to distinguish the very minute differences in vibration involved in the distinction of spoken sounds. Additional performances urged the further claim that she could read with her fingers large headlines in newspaper print.

THE WILL TO BELIEVE

Cases of this kind belong to a well recognized group of phenomena known to recent generations and even in part to ancient times. The reason why such claims find ready acceptance among critical and even psychologically trained individuals lies in the prepossession in favor of such beliefs. It is, in brief, one more example of "the will to believe." Against this popular prepossession, it may be stated emphatically that psychology has been unable to recognize the existence of such powers. Furthermore, it is extremely difficult to explain on biologic principles how capacities of this kind could be carried forward in the evolutionary processes and remain dormant except under unusual conditions. The present case involves also the further idea that those deprived of the use of one sense find compensation in the development of another. In terms of refined training and minute attention to sense indications that would ordinarily be overlooked, the last statement is endorsed by psychology. Toward the existence of such senses as Miss Huggins maintains, the attitude of psychologists is just as negative as for the general claim of unusual senses, such as "smelling" colors.

Such claims are connected in the remote and the near history with the ability to read the mind or thoughts of others, and with the possession of powers of access to personal details that could not come through the ordinary channels of sense. The best recognized instances of this order are generally described as telepathic, or clairvoyant, without definite reference to the type of sense impression by which such information is conveyed. Still more popularly are such persons spoken of as being "psychic." Such claims equally remain unrecognized by psychologists. In this instance I can speak by the right of statistics, for only from 3 to 5 per cent. of the psychologists to whom I addressed a circular were inclined to give a limited adherence to such an hypothesis. The 95 per cent. or more were decidedly against such a supposition Strictly speaking, to say that a mind is "psychic" has about as much meaning as to say that one's body is anatomic. Unquestionably we have not exhausted the range of sense perception, nor have we penetrated all the mysteries of communication of mind to mind. But with the most generous allowance for such possibilities, it still is the duty of psychologists to oppose vigorously the popular notions through which the ready acceptance of stories of unusual senses results.

THE EVIDENTIAL STAGE

The next stage of the inquiry is the evidential one. Miss Huggins goes through some tests which are interpreted to mean that she possesses unusual senses. Such tests require minute technical examination. The history of this, as of other cases, shows most clearly that everything depends on the absolute rigidity of the tests, leaving no loophole for a resort to supernormal hypotheses by a hasty conclusion that ordinary senses are insufficient to account for what is done. So interested are people at large in the possibilities of rare performances of sense powers or thought transference that such exhibitions have become a recognized part of the performance of the vaudeville stage. That craft which is repre-

sented by the Society of American Magicians furnishes most interesting proof of the possibilities of intentional and clever deception. There are any number of "mind-reading" performances that would baffle even the power of a well informed amateur to fathom the procedure. Naturally, these performers are frequently willing to be accredited with supernatural powers; but the more recent books that expose the mode of operation offer an amazing proof of the extreme ingenuity which has been expended on the creation of such mysteries. If we had the same tendency to credit stage performers with unusual senses as we have to ascribe them to the blind and deaf, we should find as strong evidence for the conclusion in their case as in the case of Willetta Huggins. On the other hand, the medical interest is centered upon the other side of the problem of deception, and in a measure so also is the psychologic interest. This begins with the hysterical type of self-deception and expands to all sorts of mixtures of belief and half belief, and a consent to believe quite akin to a delusion.

RECOGNITION OF COLORS THROUGH A REMNANT OF VISION

With this background of consideration, we approach the case of Willetta Huggins with the decks clear for the simplification of the problem. In all such cases, as in the tricks of the stage, it is the first step that counts. The same holds true of the investigations of "psychic" mysteries. The uncritical observer rushes to the conclusion that fraud has been excluded, and in the present case we may readily consent that the possibilities of any intentional deception in the usual sense may be dismissed. The reason why Miss Huggins is accredited with these unusual senses is through the conviction that her sight and hearing are useless. My own opportunity to examine Miss Huggins was limited, but was entirely sufficient to convince me that vision of colors was due to the remnant of sight which she retains. In bringing objects to her nose as if to smell them, she has them near enough to her eyes to see them through the slit of vision that she has. I base this conclusion not only on the extreme rapidity with which she recognized such objects, but on a variety of confirming tests. In the first place, the possibility of smelling colors meets the consideration that the dye used is very different for wool, silk or cotton, and that such minute differences are entirely beyond the sense of smell. There is an early observation that the girl distinguished between zinnias that were white and those that were striped red and white, a distinction far beyond the possibility of olfactory sources but very easy to vision. Moreover, her recognition with the blindfold indicated that she sees under the blindfold as do so many performers. A professional "mind-reader" called on me and showed me how, with the most careful blindfold, he is still able to play billiards and whist, by looking down beneath the blindfold. He admitted that he always ran the danger of meeting some one who knew how to apply a blindfold, in which case he could do nothing. In the case of Willetta Huggins, when a blindfold was applied closely under her eyes she was totally unable to distinguish colors. Another method was to test her in a completely dark room. The notes before me show that Miss Huggins, when tested in the dark room while an ordinary light was on, sorted colors quite correctly though slowly; but with the light extinguished she was unable to do anything at all. I do not indicate that these tests are absolutely conclusive, but cite them to show where the presumption lies. Of course, in every practical sense this girl is blind and has no central vision whatever; but the possibility of a slit-wise vision is by no means excluded.

HYSTERICAL DEAFNESS

When we come to the matter of hearing, the situation is far more complicated; medical men know as well as psychologists how difficult it is to muffle the sense of hearing. But they also know that there is an enormous difference between enough hearing to detect the *presence* of sounds and even to make coarse distinctions, and the very difficult recognition of sounds in order to *understand the meaning.* We all know that the telephone, however serviceable when we are speaking a familiar language, completely fails in the matter of proper names which are unfamiliar and unusual. Usually these have to be spelled out in order that one may understand them correctly. The further fact, that it is almost impossible to eliminate sound by any muffling device and that a very low sound clearly enunciated carries complete meaning, will clarify the problem. The very supposition that vibrations so minute as these could be carried through the finger tips taxes one's credulity. I prepared a pair of mufflers by means of modeling wax and sand bags in order to determine whether the reduction of the intensity of the sound would affect the girl's understanding. I found that it did not, from which fact those who would favor the hypothesis of a vibrational sense, instantly concluded that hearing was excluded by this evidence. But with my ears muffled in the same way, I was able to hear words from 8 to 12 feet distant and spoken in a tone of voice hardly above a whisper.

Those acquainted with the phenomena of hysterical deafness will realize how difficult it is to determine the actual status of this sense. It would take far more careful experiments than have yet been made to decide whether this is a case of hysterical deception, or whether other factors are involved. This would mean that the girl deceives herself in the belief that the vibrations conveyed through her finger tips make her hear the sounds which really reach her through auditory channels. But the psychologic laboratory possesses a technic sufficient to determine the matter, if the subject is willing to conform to the tests. There is also the fact that when, unknown to the subject, the rod that is regarded as essential to carry the vibrations was actually not in contact with the speaker's head, she replied to questions quite as well as though the contact had been established.

NATURE OF THIS PERFORMANCE

The purpose of the present statement is to place medical men on their guard in accepting conclusions of this order, and to call their attention to the technical requirements of a really rigid test. I have the further purpose of indicating emphatically that the tendency to believe in such powers is primarily responsible for the neglect of such technical considerations. Once it is assumed that fraud is excluded, naturally the "telepathic" and supernormal hypotheses are credited.

Similarly, when it is concluded on insufficient evidence that this girl has no sight or hearing left, the performance is credited to the existence of unusual senses. Such conclusions take their form from prevalent beliefs. It is interesting to go back nearly a hundred years when a boy in Nuremberg, Kaspar Hauser, was supposed to have unusual senses, particularly the sense of magnetism. He felt the presence of metals, and to pass a hardware shop might bring on a convulsion. We know of the hypnotic clinics in Paris early in the nineteenth century where there were a group of subjects who could hear only when contact was made with the abdomen; another group professed to see through a mysterious sense that would today perhaps be described as a human roentgen ray penetrating opaque objects. Just as soon as the tendency to believe in these hypotheses fell away, the performances ceased. In many cases these were due to hysterical self-deception. Surely the lessons of the past are sufficient to indicate that this performance is of a similar origin and nature.

MOTIVE

Without in any sense closing the case I believe it important to bring these considerations to the attention of physicians, whose verdict will naturally be of large importance in such cases. The question of motive in such performances is a delicate one. We all know that the dramatic interest sustains them and that this readily reaches the sensational level. The journalistic sense delights in tales of this kind and gives them wide circulation, while the negative or critical opinion is likely to be received as an example of undue skepticism. I shall not attempt to diagnose these factors in the present case. I shall, however, cite from a letter of a blind girl who, despite her handicap, has made her way through college and who writes:

> I am sure that there are very few blind people who think that they are the possessors of any unusual powers whatever; though I do know a great many sighted persons who cherish this delusion; and as there are among the blind as among the sighted a certain proportion whose intelligence and self-control is not of the highest, it is not altogether surprising that when their sighted friends hold these fancies to be true that these, at least some of these, highly suggestible blind persons should become victims, more or less, themselves of the same prepossessions.

The awkward question cannot be avoided as to whether intentional deception encroaches upon the self-deception on the part of the performer in this instance. As Janet has so well shown, the boundary line between deception and self-deception is so uncertain that one may use the veil of charity and make it cover whatever faults it may. That, however, there must be a point in connection with these performances in which the uncertain boundary line is readily passed, will be obvious to all. There is enough evidence of a hysterical disposition to make it certain that the verdict in this case cannot be readily reached. My purpose will be accomplished if this statement is accepted as a warning and an appeal to the medical profession to view such cases in the light of the well-known facts of psychology and the history of similar cases in the past.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

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Neutral Acriflavine-Heyl is a brownish-red, odorless, granular powder. It is soluble in less than 2 parts of water, forming a brownish-red solution which fluoresces on dilution and which has a bitter taste; also soluble in alcohol and ether, chloroform and the fixed and volatile oils.

An aqueous solution of neutral acriflavine-Heyl (1:100) is neutral to congo paper.

Neutral acriflavine melts at not below 90 C.

Add a few drops of hydrochloric acid to an aqueous solution of neutral acriflavine which is sufficiently dilute to be fluorescent. The fluorescence disappears, but partially reappears on further dilution with water.

Add 2 drops of sulphuric acid to about 1 Cc. of an aqueous solution of neutral acriflavine-Heyl (1:250) and agitate the mixture. No precipitate is produced (*distinction from acriflavine*).

To 10 Cc. of an aqueous solution of neutral acriflavine-Heyl (1:1,000) add 5 Cc. of diluted sulphuric acid, mix well and immerse in a bath of cracked ice. The deep red solution becomes dim, but no crystalline precipitate forms and the solution does not become colorless or nearly so (*distinction from acriflavine*).

An aqueous solution of neutral acriflavine-Heyl (1:250) gives a precipitate with silver nitrate solution (*distinction from proflavine*).

An aqueous solution of neutral acriflavine-Heyl (1:250) does not give a precipitate with barium chloride solution (*distinction from proflavine*).

An aqueous solution of neutral acriflavine-Heyl (1:250) does not give a precipitate with formaldehyde solution (*distinction from proflavine, which gives a brown precipitate*).

Add 2 drops of diluted hydrochloric acid to 5 Cc. of an aqueous solution of neutral acriflavine-Heyl (1:250) and immediately add 2 drops of sodium nitrite solution (1:10). A violet color is produced. By the further addition of an excess of sodium nitrite solution, a violet precipitate is formed and, after a few minutes, the color of the solution becomes cherry-red. This may be best observed after filtration (*distinction from proflavine, the filtrate from which is colorless*).

An aqueous solution of neutral acriflavine-Heyl (1:250) gives an orange precipitate with sodium hydroxide test solution (*distinction from proflavine, which gives a yellow precipitate*).

Incinerate at a low temperature about 1 Gm. of neutral acriflavine-Heyl, accurately weighed. The ash amounts to not more than 2.5 p r cent. About 60 per cent. of the ash is sodium chloride.

Dissolve about 1 Gm. of neutral acriflavine-Heyl, accurately weighed, in 250 Cc. of warm water, collect the insoluble matter, if any, in a weighed Gooch crucible, wash the insoluble matter with hot water, dry and weigh the residue. The insoluble matter amounts to not more than 0.5 per cent.

Dry about 1 Gm. of neutral acriflavine-Heyl, accurately weighed, to constant weight at 100 C. The substance loses not more than 10 per cent. of its weight.

LUMINAL (See New and Nonofficial Remedies, 1922, p. 60).

The following dosage form has been accepted:

Luminal Tablets ¼ grain.

PROCAINE (See New and Nonofficial Remedies, 1922, p. 35).

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DIPHTHERIA ANTITOXIN, CONCENTRATED (See New and Nonofficial Remedies, 1922, p. 280).

Parke, Davis & Company, Detroit.

Diphtheria Antitoxin (Concentrated Antidiphtheric Serum Globulin).—Marketed in piston syringe containers, containing, respectively, 1,000, 3,000, 5,000, 10,000 and 20,000 units.

TETANUS ANTITOXIN, CONCENTRATED (See New and Nonofficial Remedies, 1922, p. 281).

Parke, Davis & Company, Detroit.

Antitetanic Serum (see New and Nonofficial Remedies, 1922, p. 282). Also marketed in piston syringe containers, containing, respectively, 3,000, 5,000 and 10,000 units.

ANTIGONOCOCCUS SERUM (See New and Nonofficial Remedies, 1922, p. 285).

Parke, Davis & Company, Detroit.

Antigonococcic Serum (see New and Nonofficial Remedies, 1922, p. 285). Also marketed in bulbs, containing 12 Cc.

ANTISTREPTOCOCCUS SERUM (See New and Nonofficial Remedies, 1922, p. 288).

Parke, Davis & Company, Detroit.

Antistreptococcic Serum (see New and Nonofficial Remedies, 1922, p. 289). Also marketed in piston syringe containers, containing, respectively, 20 Cc. and 50 Cc.

General Practitioner Is Keystone of Preventive Medicine.—Preventive medicine has been eloquently preached during recent years, but nearly always as something in the abstract. But until the great force hitherto little used in this direction namely, the general practitioner of medicine, is made use of, we will fail to make the progress that we ought to make with preventive medicine in the concrete, for he, of all others, is the individual who enters into close relationship with people. —Sir Napier Burnett, *Nation's Health* **4**:192 (April) 1922.

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SATURDAY, JUNE 17, 1922

RELATIVE SECURITY AFFORDED BY BACTERIAL CONTROL OF MILK SUPPLIES AND BY MILK PASTEURIZATION

A particularly instructive milk-borne epidemic of typhoid has recently been reported from the post laboratory at Fort McPherson, Ga.[1] Although a large number of cases was not involved, and although the actual mode of contamination of the milk presents no especially novel features, the accessory circumstances are highly illuminating.

The main milk supply for the post of Fort McPherson was obtained at the time of this outbreak from a single large dairy. Pasteurization of the milk was carried out in Atlanta according to methods specified by the post laboratory. This pasteurized supply had been in use for a period of more than three years, during which time no sign of illness was traced to it. In the summer of 1921, a number of families connected with the fort discontinued the use of the pasteurized milk and purchased milk from a number of small milk dealers, the chief reasons apparently being objection to the taste of the pasteurized milk and the fact that the pasteurized milk had to be sent for while the other was delivered at the door. The small milk dealers found that they could dispose of their milk more readily if they could exhibit a laboratory report, and accordingly submitted samples of the milk to the laboratory about twice each week. In October, 1921, typhoid fever appeared in the family of one of the dealers delivering unpasteurized milk, and the use of this contaminated milk led to the occurrence of nine cases of typhoid among the consumers.

It is highly interesting that the bacterial examination of the milk samples, both pasteurized and unpasteurized, was conducted in the post laboratory during the summer and autumn of 1921 covering the period of infectivity of the raw milk. The results show that the colony count of the milk supplied by the small dealers was very low, averaging between 2,000 and 5,000 per cubic centimeter, even during the summer months. This was somewhat lower than the count obtained from the pasteurized milk supply, which averaged about 10,000.

This is perhaps the first instance on record in which, during a period of typhoid infection, routine bacterial examinations have been made of pasteurized and unpasteurized milk samples, at a time when both kinds of milk were being supplied to a small and fully controlled body of consumers. Although the epidemiologic study shows convincingly the presence of typhoid bacilli in the raw milk during the period of observation, the colony count seemingly gave no indication of danger. The pasteurized milk, on the other hand, which gave a somewhat higher colony count than the dangerously contaminated raw milk, was demonstrably not a source of typhoid.

Although it is often stated that the bacterial count is the best single index we have of the general sanitary character of milk, it is plain that important exceptions must be made. A relatively fresh raw milk of low bacterial content may be dangerously contaminated with typhoid bacilli, while a pasteurized milk with larger total numbers of bacteria may contain no disease-producing bacteria and be quite safe for use. The clearly described outbreak at Fort McPherson emphasizes once more the importance of sanitary control of the dairy and its surroundings, and especially of medical inspection of the milk handlers and their families, and also affords a convincing instance of the advantage of pasteurization.

The history of this outbreak shows, further, the protective value of typhoid vaccination. Among seventy-six persons protected by antityphoid inoculation there was only one case of typhoid, while among eighty-four not protected there were eight cases. Both groups were living under fairly similar conditions, and appear to have been equally exposed.

1. Cooper, A. T.; Curtis, N. F., and Skelton, R.: Mil. Surgeon **50**: 283, 1922.

HEALTH EDUCATION AND STANDARDS OF GROWTH

The American people is peculiarly susceptible to the driving influence of cleverly worded slogans. When we are told, day after day, to "swat the fly," our surplus energies promptly find an outlet in the pursuit of the pesky insect. And similarly, when the nation is admonished that "fat is fuel for fighters" and that "food will win the war," there is no delay in initiating a program to secure the desired ends. In recent years the more intelligent members of many communities have been reminded through a variety of semiofficial or "expert" utterances that "public health is purchasable." When the propaganda to secure greater national vitality and personal welfare is coupled with the dictum to "save the children," the appeal is always certain to awaken widespread enthusiasm and willingness to serve a worthy cause. Thus the health education movement has arisen and the problems of the nutrition and growth

of American schoolchildren have been given unusual prominence. The organization of a powerful, representative National Child Welfare Council to act as a sort of clearing house for many of the newer organizations devoted to child betterment testifies to the interest in the project and the determination of its promoters.

At the outset of all the various undertakings to explore the possibilities of improving the physical development among children of school age, the difficulty of adopting a suitable norm or standard of adequate nutrition has inevitably arisen. Emerson [1] has recently pointed out that the tables in general use in the past have been taken as the basis on which to compute normal weight. But the attempt to apply this weight for age standard leads to practical difficulties at once because of the great variation among children of the same age. It also tends to discourage many who find the average weight for their age far beyond their reach. The basis of height for age is even more perplexing because of the large number of children who are above the average height for their years. Consequently, Emerson and many others have adopted the basis of weight for height as an accurate measure of the condition of undernourished children. This decision is supposed to rest on a physiologic principle that "a body of a certain height requires certain weight to sustain it, and the most significant test of a child's physical condition is the relation between his weight and his height."

Whether such somewhat arbitrary standards of judgment are of widespread application, and what their limitations may be under the varied exigencies of either national life or personal circumstances, remains to be seen. One of the most serious pioneer efforts to carry the "nutrition class" program to its logical conclusion in the public schools of New York in 1919-1920 has led to the discovery of new problems. These are frankly admitted in a report recently issued by the bureau of educational experiments.[2] The investigators, Hunt, Johnson and Lincoln, admitting that the detailed study of growth in height and weight has been clarifying, assert that the need of a considerable amount of research in respect to standards of growth, and in respect to causal factors, has been made apparent.

The possible necessity of making allowances for unusual tendencies of certain racial stocks to promote seemingly large variations in stature has already come clearly into prominence. An illustration of other possibilities for misinterpretation is afforded by numerous recent studies of the condition of European children suffering from the growth-retarding influences of unfavorable food conditions in the Central Empires during and after the war. Here, unfortunately, experiments are being conducted by Nature on an enormous scale, and we should profit by the lessons of their untoward results. Recent measurements of large numbers of children of school age who have been realimented under institutional conditions in Berlin [3] have shown that satisfactory gains in weight after prolonged undernutrition are far more easily secured than are increments of stature represented by height measurements. The failure to attain expected increases in height at a period when restitution seemed to be proceeding rapidly in the body has not been a universal experience in the war stricken area, for Bloch's [4] and Abderhalden's [5] observations have brought more favorable reports. Nevertheless, the warning is clear that gain and symmetrical growth are by no means synonymous terms. The evaluation of proper development in adolescent groups of persons evidently calls for consideration of many factors and for much further research. Enthusiasm for betterment must not be allowed to dim our perception of the present limitations of our knowledge of growth.

1. Emerson, W. R. P.: Nutrition and Growth in Children, New York, D. Appleton & Co., 1922.
2. Health Education and the Nutrition Class, A Report of the Bureau of Education Experiments, New York, E. P. Dutton & Co., 1921.
3. Goldstein, F.: Klinische Beobachtungen über Gewichts- und Längenwachstum unterernährter schulpflichtiger Kinder bei Wiederauffütterung, Ztschr. f. Kinderh. **32**: 178 (April 12) 1922.
4. Bloch, Hedwig: München. med. Wchnschr., 1920, No. 37.
5. Abderhalden, E.: München. med. Wchnschr., 1920, No. 50.

THE ANTIVIVISECTION INITIATIVE IN COLORADO

Again efforts are being made to stop research directed toward the relief of pain and disease and the prolongation of life. By use of the initiative and referendum, the antivivisectionists of Colorado have filed a bill, to be voted on at the November election, which prohibits experimental operations on animals except to relieve or cure the animals themselves. It is the same sort of measure that was presented for popular vote in California in 1920. If it should be adopted it would abolish all experimental study of problems in general biology and in general and veterinary medicine; it would discontinue modern diagnostic methods—no Wassermann tests, no diphtheria tests for virulence, no inoculations to determine the presence of tuberculosis would be permitted. The preparation of vaccines and curative serums, and the standardization of drugs by animal tests could not be carried out. The law would thus render useless to a large degree the laboratories in the state and city boards of health, in the hospitals, in the medical school and in the Bureau of Animal Industry. It would seriously interfere with the live-stock interests, for it would not only check experiments for the cure of animal disease but would refuse to threatened herds and flocks the protection obtainable from well-tried serums and vaccines. Such legislation would imperil every man, woman and child in Colorado, and the domestic animals as well.

There is no reasonable call for such legislation. Ancient prejudices, misinformation and gross perversion of the facts have been used to mislead people

regarding the nature and the beneficent results of animal experimentation. In every medical school of the United States, in veterinary schools, in state health board laboratories, humane rules governing the treatment of experimental animals have been adopted and are being enforced. The "open door" policy, admitting freely to the laboratories the officers of humane societies, has now been adopted in the medical institutions throughout the land. There are drastic laws in the statutes against cruelty to animals. If, as the antivivisectionists insist, cruelties are being practiced in the laboratories, there is no excuse for their negligence in permitting these cruelties to continue and the perpetrators to go unpunished. Until the existing law is proved inadequate, no new law should be enacted.

The present effort of the antivivisectionists subjects the people of Colorado to an intelligence test on a large scale. When a similar test was made in California two years ago, the measure prohibiting animal experimentation was defeated by a quarter of a million votes. Everywhere, in the national Congress, in Massachusetts, in New York, in Pennsylvania and elsewhere, the antivivisectionists have failed to secure restrictive legislation. They should not have their first success in Colorado.

When people are properly informed regarding the methods of animal experimentation, the precautions taken to avoid unnecessary pain, the character of the investigators, and the great benefits that have come to man, and to animals as well, from medical research, there is no question that a large majority will not only tolerate, but will promote the activities of the laboratory workers. It is of prime importance that well-informed physicians recognize the essential need of freedom of inquiry about the problems of life and death, and that they give their time generously to explain how the proposed law would endanger the welfare of Colorado.

The responsibility does not rest, however, solely on physicians. The fight against preventable disease and premature death should be one of the first interests of all public spirited citizens. They should recognize that in this fight the antivivisectionists are slackers, doing nothing themselves to secure better health and longer life for their fellows, and trying their best to prevent others from using the ways which have proved most effective. These ways are now used throughout the civilized world. The intelligent voters of Colorado must not undermine and destroy their own defenses.

China Workers and Tuberculosis.—The *Hospitalstidende* quotes some recent statistics confirming the higher death rate from tuberculosis in the ceramic industries, and the *Deutsche medizinische Wochenschrift* reports that the German minister of the interior, the minister of labor and the Prussian public welfare minister have been investigating this subject. A number of meetings have been held for discussion with various consulting authorities, and the Kaiser Wilhelm Academy is undertaking a series of researches to throw light on the questions involved.

Current Comment

PROPOSED HIGH TARIFF ON SCIENTIFIC INSTRUMENTS

The Fordney Tariff Bill places an increased tariff on microscopic, optical and other scientific instruments and, according to newspaper reports as THE JOURNAL goes to press, the Senate, on motion of its Finance Committee, has refused requests by educational institutions that they be permitted to obtain scientific instruments and apparatus free of duty. In this regard, the proposed legislation is a complete reversal of the government's attitude toward educational institutions. The available funds for scientific instruments in such institutions are invariably inadequate in comparison with the great needs and possibilities of education and scientific research, which should not be hindered by undue taxation. Exemption of education from taxation has been the policy of previous tariff bills and it has proved satisfactory. It is to be hoped that the Senate may see its way clear to reconsider this particular point; failing that, that the situation may be corrected when the tariff bill comes to conference. To eliminate the exemption of educational institutions would be a serious blow to the cause of science and of scientific medicine in particular.

BACTERIOLYTIC TEARS

During the past month the newspapers have regaled a public always hungry for the newest contributions of science, provided they can be dispensed in the highly spiced form that alone seems to be popularly palatable, with imported stories of the microbe-destroying power of the lacrimal secretion. The potent component was referred to as "lysozyme." The basis for this hubbub is to be found in a communication[1] to the Royal Society of London from the Laboratory of the Inoculation Department of St. Mary's Hospital, the scientific home of Sir Almroth Wright. Lysozyme is described as a substance present in the tissues and secretions of the body, having properties akin to those of ferments and capable of rapidly dissolving certain bacteria. It was discovered through the chance observation of the bactericidal action of nasal mucus on a heretofore undescribed nasal micro-organism, *Micrococcus lysodeikticus*. A few other bacteria also, but by no means most of those tested, have been inhibited in growth. In addition to checking their development, the potent fluids exert a lytic action so that the micro-organisms actually disintegrate more or less completely. Lysozyme is said to occur in many biologic products: tears, sputum, nasal secretion, saliva, blood serum, effusions, sebum, etc. It is thermolabile. On the basis of his somewhat preliminary investigations, Fleming ventures to assert that the commonly alleged mechanical effects of tears, saliva and sputum in "washing away" micro-organisms are supplemented by their unique "property

1. Fleming, A.: On a Remarkable Bacteriolytic Element Found in Tissues and Secretions, Proc. Roy. Soc. London (B) **93**: 306 (May 1) 1922.

of destroying microbes to a very high degree." Apparently, however, the majority of those attacked represent nonpathogenic forms. It must not be forgotten that our knowledge of bacterial destruction is by no means entirely new. Nuttall demonstrated in 1888 that fresh normal defibrinated blood has the power of killing bacteria; and bacteriolysis both in vivo and in vitro presently became an established possibility.

ON THE INTRAVENOUS USE OF ACACIA

The discussion by Dr. Bayliss,[1] the originator of the intravenous use of acacia solution, in this issue of THE JOURNAL, will be appreciated by readers, although it is disappointing to learn that the main issues raised by the editorial to which he replies are not effectively disposed of by him, but are left virtually in statu quo. It is now generally accepted that acacia has a limited and uncertain usefulness, notwithstanding the impression conveyed by the author that the place of this substance in the therapeutic armamentarium is assured, and that the mechanism of its action and other features are settled. That this is far from being the case can readily be ascertained from the papers quoted in the editorial and those on the mechanism of its action and usefulness recently published by Zondek [2] and Meyer.[3] The intravenous use of acacia is a recent therapeutic procedure—not more than four or five years old—and apparently sufficient time has not elapsed for a thorough appraisal of its use as a therapeutic remedy. Bearing in mind the accidents from the use of acacia that have been reported, the lack of agreement as to its beneficial effects, among surgeons who have tried it, the experimental evidence that has been reported as to its deleterious effects, and the paucity of data indicating its clinical usefulness, conservative practitioners will still withhold their verdict. Moreover, the questions of intravenous therapy, which are involved in any discussion on the use of acacia in shock, hemorrhage and allied conditions, are an important and serious complicating consideration.

COMPENSATORY CIRCULATORY FUNCTION FOLLOWING HEMORRHAGE

The capacity of the organism to adjust itself to new conditions which may threaten the efficacy of its normal functions is sometimes truly remarkable. Illustrations are afforded by the marked changes in the respiratory and circulatory mechanisms that ensue when the body is transported to a considerable altitude where a shortage of atmospheric oxygen tends to occur at the lowered atmospheric pressure. To some extent the physiologic adjustments to vigorous muscular work are of an analogous character. After hemorrhage, the tissues are threatened with harm through the possibilities of lowered blood pressure and smaller volume of circulating fluid with a decreased total oxygen-carrying capacity. So long as the loss of blood is not very large, several factors may come into play to protect the organism against the danger of imperfectly filled blood vessels sending less blood to the heart and resulting in insufficient oxygenation in the active cells. Thus, augmented breathing hastens the venous flow to the heart from the abdomen; an accelerated heart rate tends to increase the cardiac output per unit of time and thus maintain the general arterial pressure; and the latter is still further secured by the constriction of the peripheral blood vessels. Whether or not the fluid lost by hemorrhage is promptly restored from the tissue fluids has often been debated, and it seems to depend on a variety of factors.[1] In a recent issue of THE JOURNAL, Burton-Opitz[2] has reported experimental studies on hemorrhage indicating that the adaptation of the system to the gradual loss of a relatively small volume of blood is probably not brought about by any rapid restoration of fluid derived from the tissues. According to him, the important factor is the active compensatory regulation of the caliber of the peripheral vessels. Presently, with larger or more rapid hemorrhages, the increased heart rate and other adjustments come into play, until finally, with failure of the venous supply and symptoms of cardiac weakness, the arterial pressure declines.

THE RÔLE OF SALICYLATES IN ACUTE RHEUMATIC FEVER

Salicylates are so widely used as therapeutic agents, notably in such conditions as acute rheumatic fever, that the pharmacology of these compounds ought to be understood. They undoubtedly afford relief to many while the medication is continued. Since salicylates are usually assumed to be antiseptics, they have been supposed to exert benefit by acting destructively on microorganisms which may be concerned in the etiology of rheumatism. Although salicylic acid has some bactericidal power, its salts are virtually devoid of this, particularly in the low concentrations in which they might circulate in the organism. As salicylic acid, in whatever form it is administered, undoubtedly is absorbed and circulates as a more soluble salicylate, because it cannot exist free in the blood or other slightly alkaline fluids of the body, the theory of bactericidal function finds little support. It has been suggested, however, that, although the salicylic acid cannot occur as such in the blood, it might be liberated in the inflamed tissues of patients with acute rheumatic fever, especially as a considerably increased tension of carbon dioxid was assumed to exist in such localities of the body. Hanzlik [3] failed to discover free salicylic acid in the exudates from inflamed joints of rheumatic patients; but he took no precaution to prevent the escape of carbon dioxid from his specimens. A reinvestigation of joint exudates from suitable patients by Boots and Cullen [4] at the Hospital of the Rockefeller

1. Bayliss, W. M.: Acacia for Transfusion, this issue, p. 1885.
2. Zondek, S. G.: Biochem. Ztschr. **116**: 246, 1921.
3. Meyer, Erich: Klin. Wchnschr. **1**: 1, 1922.

1. Hewlett, A. W.: Functional Pathology of Internal Diseases, New York, D. Appleton & Co., 1917, p. 586.
2. Burton-Opitz, Russell: The Functional Capacity of the Heart During Hemorrhage, J. A. M. A. **78**: 1375 (May 6) 1922.
3. Hanzlik, P. J.: J. Pharmacol. & Exper. Therap. **9**: 217 (Jan.) 1917.
4. Boots, R. H., and Cullen, G. E.: The Hydrogen-Ion Concentrations of Joint Exudates in Acute Arthritis, Proc. Soc. Exper. Biol. & Med. **19**: 287 (March 15) 1922.

Institute, New York, under all the precautions dictated by up-to-date procedures for the study of hydrogen ion concentration, showed the fluids to be slightly alkaline. As a definitely acid medium is necessary for the liberation of salicylic acid, the latter cannot exist free in the joint fluids after the administration of salicylates. Consequently, any advantage from their use cannot be ascribed to bactericidal effects.

ACTIVITIES OF THE ANTIVIVISECTIONISTS

The comments made in the editorial in this issue concerning antivivisection propaganda now being conducted in Colorado are directed particularly to that state, since the problem there is an immediate issue. In other states, however, the antivivisectionists, enlisting in their cause all other antis against preventive and curative medicine, are either now, or will be in the near future, actively engaged in propaganda of a similar character. Louisiana, Florida, Idaho, Oregon, Washington and California anticipate conflict this fall on this particular subject. The medical profession must aid an enlightened public to inform legislators clearly as to the issues involved. The question is not, however, one which concerns the medical profession primarily; it is fundamental to the public health.

PROPHYLACTIC VACCINATION OF DOGS AGAINST RABIES

In several parts of the United States, rabies has been more prevalent in recent months than for many years. Connecticut and western Massachusetts, particularly, seem to have suffered from the ravages of several rabid animals, one large dog in Holyoke biting twenty persons. As well known, Pasteur's method of vaccination against rabies has been successfully practiced on thousands of human patients; but it has never been used to any great extent in protecting dogs, largely because of its great expense and time-consuming nature. An important advance now seems to have been made. Two Japanese investigators, Umeno and Doi, have recently found it possible to confer immunity on dogs with a single injection. The method of immunization consists of a single dose of phenolized fixed virus, and is said to have been used in certain regions in Japan with great success. Eichhorn and Lyon [1] have recently undertaken to test the degree of immunity actually produced by a single vaccination. Their results confirm those of the Japanese workers, and are most encouraging. Their experiments justify the conclusion that dogs injected with a single dose of phenolized fixed virus are protected against large doses of street virus. This method offers a promising opportunity of controlling, if not eventually eradicating, the disease. Compulsory vaccination of all dogs in localities where the disease is prevalent might readily be employed. The method should be given a trial by the public health authorities in some locality where rabies is prevalent and where the results can be properly controlled.

1. Eichhorn, A., and Lyon, B. M.: J. Am. Vet. A. **61**: 38, 1922.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Library for Physicians.—The Los Angeles County Medical Association has purchased property at Orange Street, Los Angeles, where it will erect a physicians' club building and medical reference library, at an estimated cost of $200,000. The building will be two stories high and will be built in mission style.

Shrine Hospital Dedication.—On the occasion of the Shriners' convention in San Francisco the Imperial Potentate dedicated the San Francisco Hospital for Crippled Children, June 12. This will be the first of the ten hospitals to be erected by the Shriners. The institution will be built at a cost of $260,000, and is expected to be ready for occupancy in September. Dr. Walter I. Baldwin, assisted by Drs. Edward C. Bull and Fred Hass, has been appointed surgeon-in-chief of the hospital.

DISTRICT OF COLUMBIA

Personal.—Dr. John A. Foote, Washington, was recently elected president of the Society of American Teachers of Diseases of Children at the annual meeting in St. Louis, held in connection with the annual session of the American Medical Association. Dr. Foote was also elected vice president of the Section on Pediatrics.

Medical Meeting.—At a meeting of the Mapiya (Medicine Men) in Washington, May 17, the subject discussed was "The Present Status of Medical Education in the United States." Dr. George M. Kober, dean of the Georgetown University School of Medicine; Dr. Edward A. Ballock, dean of Howard University School of Medicine, and Dr. William C. Borden, dean of George Washington University Medical School, gave addresses.

President on Child Labor.—The recent decision of the supreme court that the child labor law was unconstitutional has influenced President Harding to state his intention of sending a special intimation to Congress recommending action to correct the situation created by the supreme court's action. The President is expected to recommend a constitutional amendment giving Congress power to regulate the employment of children and women in industry.

ILLINOIS

Dr. Taylor Resigns.—Dr. Lewis C. Taylor, Springfield, executive secretary of the state board of medical examiners for the last twenty-five years, tendered his resignation to W. H. H. Miller, head of the department of education and registration, June 7.

Appointment of Medical Examiners.—The following physicians have been appointed to the state board of medical examiners: chairman, Dr. John R. Pennington, Chicago; Dr. Elbert L. Damron, Effingham; Dr. Henry P. Beirne, Quincy; Dr. Harry H. Hanly, Peoria, and Dr. Frank B. Earle, Wilmette.

Physician Acquitted.—It is reported that in the $25,000 suit for malpractice brought by Mrs. Shaw against Dr. Adolph J. Foerter, Peoria, the jury reached a verdict of "not guilty," May 19. Physicians on the witness stand stated that Dr. Foerter's treatment of the woman's fractured arm conformed with approved medical practice.

Epidemiologic Survey at Rockford University.—Owing to three successive outbreaks of diarrhea that have recently occurred among the students of Rockford University, an examination of specimens from all food handlers connected with the institution has been ordered. This action was deemed necessary in order to establish or disprove the possible presence of typhoid fever carriers that may have been responsible for the trouble.

Emergency Chlorinator Installed at Marshall.—As a result of a rather sharp outbreak of typhoid fever, which was attributed to pollution in the public water supply, the city of Marshall has installed an emergency liquid chlorinator. At the same time, the state department of public health has stationed its mobile diagnostic laboratory at the scene, and

has assigned a district health superintendent to assist the local authorities in carrying out a survey for the purpose of locating every possible source of typhoid fever. Typhoid fever has been epidemic in Marshall for years, and the present activities constitute a determined effort permanently to eradicate the disease there.

Summer Public Health Program.—The state department of public health has decided on five specific lines of action for its program during the present summer and the coming fall months: (1) a campaign looking toward the adoption and enforcement of a practical milk pasteurization ordinance in all the principal towns and cities; (2) the installation, through local officials, of a public health nursing service in all counties that are now without such service; (3) a survey to determine the exact status and extent of infant welfare service throughout the state; (4) a survey to locate and obtain the names and addresses of all midwives, whether registered or not, who are now practicing in Illinois, and (5) the completion of the birth registration drive which was inaugurated several months ago. Work in connection with this program will be carried out largely by the district health superintendents.

Chicago

Chicago Tuberculosis Society.—At the recent annual meeting of the society, Dr. Walter B. Metcalf was elected president; Dr. Herman J. Achard, secretary-treasurer, and Dr. John Ritter, trustee for three years.

Public Health Conferences in Chicago.—Two public health conferences will be conducted in Chicago, July 29-August 15. One will deal with the production and sale of safe milk supplies; the other will be concerned with the use of toxin-antitoxin as an immunizing agent. The state department of public health in cooperation with a regional committee of the International Milk Dealers' Association and local health officers is taking an active part in arranging for these meetings, having issued invitations to representative public health officials, milk dealers, dairymen, physicians and others who are particularly concerned. The purpose of the conference on safe milk supplies will be the drafting of a model ordinance suitable for adoption by municipalities throughout the country. In this connection, the state department of public health, in cooperation with the University of Illinois and the state department of agriculture, has worked out an ordinance which will be presented for consideration by the conference. The other conference will be devoted largely to a discussion of the practicability of using toxin-antitoxin on a large scale for preventing diphtheria.

LOUISIANA

Personal.—Dr. Stephen W. Stafford, New Orleans, while returning recently from a European trip abroad the *Hansa*, of the Hamburg-American Line, was stricken with paralysis. His condition, which was serious for a time, was somewhat improved when the ship reached port.

MARYLAND

Health Board Convenes.—Officials of the Johns Hopkins School of Hygiene and Public Health and of the Baltimore City and State Health Departments addressed the annual conference of the board of health of Maryland at Osler Hall, Baltimore, June 9. Dr. John S. Fulton, secretary of the state department of health, was in the chair at the morning session and Dr. C. Hampson Jones, health commissioner of Baltimore, presided at the afternoon session. Dr. William H. Welch of the Johns Hopkins School of Hygiene and Public Health presided at the evening session.

Johns Hopkins Hospital.—After a year's operation, the Kelley-Kilmer ward at the James Buchanan Brady Urological Institute, Johns Hopkins Hospital, provided for persons of moderate means, has proved a complete success. This ward was made possible by gifts, totaling $50,000, from two former patients at the Brady Institute, Mr. R. W. Kelley of New York and Mr. Willis S. Kilmer of Remlik, Va., who decided to donate this amount that one of the wards of the building already completed could be opened and put into operation.——The new laboratory of the physiologic division of the medical department of the Johns Hopkins Hospital has just been completed and put into service. This is the gift of William Bingham of Cleveland, who gave $5,000 to increase the hospital's facilities for investigative work in the problems of circulation and respiration. Of the $5,000, about $3,500 was spent for the building, and about $1,500 will be available for equipment.

Personal.—Dr. W. N. Palmer, Easton, has been appointed county health officer.——Dr. Leon C. Havens, Baltimore, has been appointed director of the laboratory work of the state health department.——Dr. J. Knox Insley has been appointed chairman of the state board of labor and statistics.——Dr. John W. Baylor has become associated with Dr. Harry R. Slack, Jr., in the practice of otolaryngology.——Dr. George W. Corner, associate professor of anatomy, Johns Hopkins Medical School, has been appointed head of the department of anatomy in the new school of medicine and dentistry now being organized at the University of Rochester, N. Y.——Dr. Hugh H. Young, Baltimore, recently spoke before the House Judiciary Committee in Washington, urging the passage of the bill continuing the work of the interdepartmental social hygiene board under the Department of Justice by the federal government.——Dr. W. V. McCollum, Johns Hopkins School of Hygiene and Public Health, delivered an address, June 7, at the thirty-seventh annual convention of the Holstein-Friesian Association of America in Kansas City.

MASSACHUSETTS

Changes in the Health Department.—Dr. Francis A. Finnegan, state district health officer, has resigned to become director of hygiene at Lowell.——Dr. Oscar A. Dudley, district health officer of the Berkshire District, has been transferred to the Worcester District, to succeed Dr. Finnegan.——Dr. Leland M. French, epidemiologist to the central office of the department, has been appointed to succeed Dr. Dudley.

Fellowships at Public Health School.—It has been announced that the new Harvard School of Public Health, which will open in September, is offering several fellowships of $1,200 each, for the year 1922-1923. Properly trained students working for their doctor's degree will be given special consideration. Applications for these fellowships should be made to the secretary, School of Public Health, 240 Longwood Avenue, Boston, not later than August 1.

Personal.—Dr. Lydia Reinhold Baker-Pierce has been appointed resident pathologist at the State Hospital, Westboro.——Dr. George E. Percy, Salem, has returned to the United States from a trip to Porto Rico, and will practice in Boston.——Dr. Isabella L. Cameron, Boston, has been appointed to the Women's Maternity Hospital, Minneapolis.——Dr. Barbara Ring of the Ring Sanatorium, Arlington Heights, is the author of a play entitled, "The Making of Mariana," dealing with the problem of psychanalysis from its purely scientific aspects. This play was recently produced in Boston, under the direction of the Theater Guild.——Dr. William L. Fraser, Lynn, has been appointed health commissioner of Yarmouth, Nova Scotia. He will serve under the U. S. Public Health Service and look after the interests of the United States. Dr. Fraser served during the World War as commanding officer of Base Hospital No. 144.

MICHIGAN

University of Michigan.—Prof. Howard Bishop Lewis, instructor of physiologic chemistry at the University of Michigan Medical School, Ann Arbor, has been appointed to the chair of physiology at the university. The quarters and equipment of the chemistry department will be enlarged to accommodate the increased classes.

Annual State Meeting.—At the fifty-seventh annual meeting of the Michigan State Medical Society in Flint, June 7-9, the following officers were elected for the ensuing year: president, Dr. William T. Dodge, Big Rapids; vice presidents, Drs. Joshua G. R. Manwaring, Flint, William E. McNamara, Lansing, Theodore F. Heavenrich, Port Huron, and William K. West, Houghton. Dr. Frederick C. Warnshuis was reelected secretary of the association. The house of delegates adopted and approved all the action that was taken by the American Medical Association at St. Louis and subscribed its support in instituting these constructive measures in the state of Michigan.

Nurses' Instruction Institute.—Nurses from all parts of the state will meet at Ann Arbor, June 5-16, for an instructors' institute, under the direction of the Michigan State League of Nursing Education. Dr. Christopher G. Parnall, director of the University of Michigan Hospital, will deliver the opening address. Subjects to be discussed are: hospital laundry problems, training attendants, training dental hygienists, rural nursing, communicable diseases, cooperation between rural nurses and home economics departments, occupational therapy in hospitals, various phases of hospital administration, child welfare, intelligence testing and organization of public health and country nursing.

MISSOURI

Society News. — The St. Louis Medical Society has appointed a committee to make a survey of the city institutions for the care of the sick, with a view of preparing an ordinance for increasing the salaries of physicians employed in such institutions. The society has inaugurated a custom of introducing new members at a regular meeting every month. Twenty members were introduced at the meeting of June 6.

Hospital News.—A new hospital will be erected by the Liberty Hospital Building Company, St. Louis, on the southwest corner of Taylor and Washington avenues.——A $37,000 addition to the Amanda Hospital, Mexico, is being erected. ——Bids have been received for the $79,000 building to be erected for the Missouri State Hospital, Mount Vernon.—— A new hospital will be built as an addition to State Hospital No. 1, Fulton, to care for 120 patients. The building will cost approximately $85,000, and will partially relieve the congestion at the hospital, but it will not take care of the large overflow that has crowded the institution. There are 1,400 people at the hospital, which is 400 more than there are accommodations for.——The following appointments have been made at State Hospital No. 2, St. Joseph: Dr. Edwin C. Renaud, laryngology and rhinology; Dr. Mark J. Farber, dermatology; Dr. Charles Greenberg, genito-urinary; Dr. Caryl A. Potter and Dr. Hilen K. Wallace, surgeons; Dr. J. G. Morgan, dental surgeon; Dr. William H. Minton, ophthalmology; Dr. Andrew A. Disque, otology; Dr. Levi H. Fuson and Clarence A. Good, internists; Dr. Arthur B. McGlothlan, roentgen ray. The positions are honorary, and the men will serve without pay.

NEBRASKA

Personal.—Dr. John Mayer, Osmond, recently suffered a paralytic stroke.——Dr. Solon R. Towne, Omaha, was reelected president of the Nebraska Tuberculosis Association at the recent meeting held in Omaha.

Nebraska Academy of Science.—At the annual meeting of the academy held in April, Dean H. von W. Schulte spoke on "The Development of the Salivary Glands in Mammals," and Dr. Mills J. Breuer on "The Philosophy of Diagnosis."

Hospital News.—The contract has been let for the erection of a $125,000 hospital building to be erected by the Nebraska board of control at Burkett.——The City Hospital board will erect a new 100 bed hospital at Lincoln, at a cost of $150,000.

NEW YORK

Physicians Contribute to Wilson Fund.—Health Commissioner Royal S. Copeland has accepted the chairmanship of a physicians' committee of the Woodrow Wilson Foundation, which is interested in raising $1,000,000 for the establishment of a series of annual prizes for meritorious public service.

Children Undernourished.—The superintendent of the school department of the Children's Aid Society states that the number of children here suffering from malnutrition is on the increase, in spite of the efforts of the organization maintained in eight schools and health centers in the tenement districts. An average of 1,380 meals a day is being served in health centers to children, who are chosen according to their degree of malnutrition. But, although in addition to this supplementary feeding, these children are given the best medical, dental and nursing supervision, they have lost weight during the last year.

New York City

Physician's Gift Completes Park.—Dr. Ernest G. Stillman recently presented 600 acres of valuable land to the Palisades Interstate Park Commission. This gift completes the Palisades Public Park from Cornwall to West Point.

Change in Sanitary Code.—At a meeting of the board of health, May 3, resolutions were adopted to amend Section 122 of the Sanitary Code to read thus:

Section 122. Poison; sale and distribution regulated.—No person shall sell at retail or give away any poison unless the bottle, box, package, parcel or receptacle containing such poison sold or given away shall bear a label on which shall be conspicuously printed or stenciled in red ink, in plain legible characters, the name of the substance or article, the word "POISON," the name and place of business of the seller, or donor, a skull and crossbones, the word "CAUTION," the maximum dose of the poison, and the antidote therefor. The provisions of this section shall not apply to medicinal compounds containing poisonous drugs in ..erapeutic doses when the maximum dose of such preparation is marked on the container.

Bleached Flour Must Be So Labeled.—At a meeting, June 9, the board of health adopted a resolution, effective September 1, providing that flour bleached with a chemical shall be labeled conspicuously with the name of the bleaching agent. In explaining the reason for this action, Dr. Royal S. Copeland, health commissioner, called attention to the tendency of the public to associate whiteness with purity. This has led to the practice to some extent of doctoring inferior flour to give it an appearance of dazzling whiteness. The board of health is seriously considering the idea of prohibiting the sale in this community of bleached flour.

Cornell Pay Clinic Thrives.—During the first six months of its existence, according to a report from the United Hospital Fund, the Cornell pay clinic has given 54,656 treatments. During this period, there were 22,828 persons admitted to the clinic. Patients have had to be turned away from the clinic continuously, despite every effort to increase the facilities. The report asserts that this indicates that a pay clinic of this type meets an important public need. The clinic has been run at a loss of about $3,000 a month in excess of the former deficit of the Cornell dispensary. This additional deficit and $30,000 for a reequipment fund have been provided by the Rockefeller Foundation, through the dispensary committee of the United Hospital Fund. At present, there are about eighty physicians on the staff of the clinic.

Personal.—Dr. Stanton P. Hull has been appointed a member of the public health council by Governor Miller, to succeed Mrs. Elmer Blair, whose term has expired.—— Dr. Louise Pearce, Rockefeller Institute for Medical Research, New York, has been elected a corresponding member of the Société Belge de Médecine tropicale, Brussels.——Dr. Joseph A. Blake has been awarded the Grand Cross of the Legion of Honor, in recognition of his services in France.——Dr. George David Stewart sailed for Italy, June 1.—— Dr. Stephen Smith, aged 99, who graduated from the College of Physicians and Surgeons in 1850, was awarded the degree of doctor of science at the commencement exercises of Columbia University, June 8.——Dr. Charles Edward Amory Winslow has been elected head of the Safety Institute of America.—— Drs. Abraham Flexner, C. E. Manning and Ernest Fahnestock recently sailed for Europe.

NORTH CAROLINA

Hospital News.—A twenty-two bed hospital will be erected at Asheville, to be known as the Blue Ridge Hospital for Negroes.——The new French Broad Hospital at Asheville was opened for patients, April 27. The hospital property was purchased at a cost of $30,000 and the capital stock is $100,000.

Typhoid Campaign.—Typhoid and diphtheria prevention campaigns have recently been carried out in various counties in North Carolina, with the result that three treatments of typhoid vaccine each were given to nearly 10,000 persons and a like number of treatments of toxin-antitoxin, for diphtheria prevention, to 884 children between the ages of six months and six years. Sixteen vaccination campaigns similar to this have already been arranged for the summer.

OHIO

Laboratory Men Organize.—At the recent meeting of the Ohio State Medical Society at Cincinnati, there was organized the Ohio Society of Clinical Laboratory Diagnosis. Dr. Carl Spohr, Columbus, was elected chairman, and Dr. C. E. Roderick, Columbus, secretary. Drs. E. E. Eisenberg, Cleveland, Thomas Ramsey, Toledo, and Albert Faller, Cincinnati, were named to act as an advisory committee.

New University Building.—The last details of plans for building the $2,500,000 medical school of Western Reserve University have been completed, and construction will commence as soon as labor conditions become settled and the building material markets are considered stabilized. This building is the gift of Samuel Mather, whose endowments to the university total more than $4,000,000. The new edifice will be a unit of a proposed university hospital group.

Centralize Children's Institutions.—A plan to centralize all children's medical institutions in Cincinnati situated near the College of Medicine and the General Hospital has recently been started. The new home for the friendless will be erected opposite the nurses' home and is the first of several institutions to be built on the hospital site. Dr. William Gillespie, chief of the obstetric service of the General Hospital, will serve in the same capacity for the friendless home, as will other members of the staff.

Personal.—Dr. James Martin has resigned as health commissioner of Crawford County and will leave for California.—— Dr. Clarence D. Barrett, Creston, has been

appointed health commissioner of Wayne County and Wooster, to succeed the late Dr. Dallas K. Jones.——Dr. Oscar Craven has been appointed health officer of Springfield to succeed Dr. Rush R. Richison, who resigned recently.——Dr. Lewis W. Heizer has been appointed chief medical director of the Cincinnati Health Department, to succeed Dr. Craven.——Dr. Henry L. Sanford, Cleveland, was elected president of the American Urological Association at the recent convention at Atlantic City.——Dr. Mary D. Crane has been elected president of the Woman's Medical Club of Columbus.——Dr. Joseph Blickensdorfer, health commissioner of New Philadelphia, has been appointed health officer of Dover also, to succeed Dr. Max Shauweker, who resigned, May 23.——Dr. Harry Lee Canright, dean of the West China University School of Medicine, Chengtu, China, is home on furlough.——Dr. J. Fred Wuist, Dayton, has been appointed a member of the state board of medical examiners, to succeed Dr. S. M. Sherman, Columbus, whose term has expired.

PENNSYLVANIA

Annual Dinner.—The class of 1912 of the Medico-Chirurgical College of Philadelphia held their tenth annual dinner, June 7. Dr. Robert W. Randall was toastmaster. Drs. Ernest Laplace, Seneca B. Egbert and George H. Meaker were among the speakers.

Personal.—David Wright Wilson, Ph.D., Johns Hopkins University, will succeed Dr. John Marshall in the chair of physiologic chemistry in the University of Pennsylvania School of Medicine. Dr. Wilson was assistant professor of chemistry at Johns Hopkins University in 1914, and, since 1917, has been associate professor of physiologic chemistry at the School of Hygiene and Public Health.——Dr. Harry W. Mitchell, Warren, has been elected president of the American Psychiatric Association.

Course for Nurses.—Seventy-five nurses from the state department of public health who have demonstrated heroism in epidemics, floods, mine explosions and other emergencies are taking an intensive six weeks' graduate course, given by the Pennsylvania School of Social Service in conjunction with the University of Pennsylvania in Philadelphia. Dr. Howard C. Carpenter, director for the department for the prevention of disease of the Children's Hospital, and Dr. Alexander C. Abbott, director of the school of hygiene and public health of the University of Pennsylvania, are among the lecturers and instructors.

Philadelphia

Personal.—Dr. Aller G. Ellis, associate of pathology in the Jefferson Medical College of Philadelphia and director of the Ayer Clinical Laboratory of the Pennsylvania Hospital, has resigned these positions to accept the directorship of the Colorado Springs Clinical Laboratory in Colorado.

Phipps Institute.—The Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis has recently started the publication of a series of open letters to members of the medical profession, to give them the latest facts on tuberculosis and allied diseases, based on twenty years of clinical, sociologic and pathologic research and practical experience. Bulletin No. 1 deals with chronic bronchitis and pulmonary infections other than tuberculosis, and Bulletin No. 2 will treat of tuberculosis and syphilis.

PORTO RICO

Personal.—Dr. Manuel de la Pila Iglesias, president of the Medical Association of Southern Porto Rico, has left for Europe.——Dr. R. Ruiz Arnau, former president of the Academy of Medicine of Porto Rico and now residing in New York, where he is one of the staff in charge of the postgraduate course of the Pólyclinic Medical School and Hospital for Spanish-speaking physicians, is now visiting in Porto Rico.——Dr. Francisco Matanzo, a New York ophthalmologist, is now in Porto Rico.

RHODE ISLAND

Hospital News.—The new James Frances Brown Building at the Rhode Island Hospital, Providence, was opened for patients, June 12. The building is the result of community cooperation. It will be used for private patients.

TEXAS

Personal.—Dr. George W. Wilhite, Orange, sailed with his bride, June 3, to accept an appointment at St. Luke's Hospital, Manila, P. I.

New Laboratory at University.—A new laboratory of physiology and a new laboratory of pharmacology, each separate buildings, have been erected at the University of Texas, Galveston, at a cost of $19,000.

Hospital News.—The Baptist Hospital, formerly known as the Protestant Hospital, Fort Worth, was opened, June 1.——The West Texas Hospital, Lubbock, erected at a cost of $125,000, was opened to receive patients, March 15.——A site has been purchased for the erection of a clinic building to cost $60,000.

WISCONSIN

Personal.—Dr. Gertrude W. Hulet, who practiced medicine for twenty-two years at Marinette, recently returned from Vuy Yu Ru, India, for a few months' vacation. Dr. Hulet is a medical missionary under the Canadian Baptist Foreign Mission Society and will return to India in July.

Hospital News.—A $100,000 memorial hospital will be erected at Edgerton.——The sum of $50,000 has been given for the establishment of a hospital at Madison.——The Eastern Star Hospital Association will erect a $40,000 hospital building at Dousman.——An addition will be erected at St. Mary's Hospital, Rhinelander.——The new building of St. Elizabeth's Hospital, Appleton, is nearing completion.

Medical Meeting.—At the thirty-fourth annual meeting of the Fox River Valley Medical Society, at Oshkosh, June 2, Drs. Hugh Cabot, dean of the University of Michigan; Alfred Scott Warthin, professor of pathology, University of Michigan; George E. Fahr, professor of medicine, University of Minnesota, and Dean Charles R. Bardeen, professor of anatomy at the University of Wisconsin, were the principal speakers.

CANADA

Physicians' Prescriptions.—According to a report recently issued by the Attorney-General of Ontario, 532,611 prescriptions for liquor were filled in the province in 1921, which required 183,246 gallons of spirits. The value of this amount of liquor was $3,131,410.

Ontario Medical Association.—At the forty-third annual meeting of the association at Toronto, May 30-June 3, the following officers were elected for the ensuing year: president, Dr. Edward R. Secord, Brantford; first vice president, Dr. John Fenton Argue, Ottawa; second vice president, Dr. George S. Young, Toronto; honorary treasurer, Dr. George S. Cameron, Peterboro, and secretary, Dr. Thomas C. Routley, Toronto (reelected). The next annual meeting will be held at Windsor, Ont.

University News.—Plans for amalgamating all institutions for higher education in the maritime provinces of Canada, into a central university at Halifax, with the assistance of the Carnegie Foundation, have recently been announced. Alumni of the various colleges are at present considering the proposal. A head university is planned in Halifax, connected with all the colleges, but not any particular one, which will do the work of the graduate and professional schools for the provinces. It is planned that the various colleges situated outside of Halifax shall move to Halifax, providing buildings of their own, where the general work in English, Latin, Greek, mathematics and history shall be conducted for the first two years; all examinations shall be conducted by the head university, and all the degrees be conferred by it, with the exception of those in theology. The Carnegie Foundation would assist financially the colleges which would have to move.——A new medical building at the University of Alberta, Edmonton, was occupied for the first time at the 1922 session. The total cost of the building was more than $1,000,000.——The new buildings at the University of Manitoba, Winnipeg, erected to house the departments of pathology, bacteriology, biochemistry and physiology, are now occupied. This has provided space in the old building for the expansion of the department of anatomy. During the past year, full-time professors in internal medicine, physiology and biochemistry were appointed, this work having previously been taught in conjunction with physiology and pharmacology.

GENERAL

Fraternity Convention.—The annual reunion of the Phi Lambda Kappa Fraternity, Inc., one of the largest medical fraternities, having chapters in most of the Class A medical schools, will be held at Pittsburgh, June 19-21.

American Nurses' Association.—The annual convention of the American Nurses' Association will be held in Seattle, June 26-July 1. The public will be invited to attend a ses-

sion June 27, when physicians and nurses will discuss the training of nurses and means for bettering conditions during the training period.

American Association for the Study of the Feebleminded.—At the annual meeting of the association in St. Louis, May 18-20, Dr. Charles Banks McNairy, superintendent of the Caswell Training School, Kinston, N. C., was elected president, and Dr. Benjamin W. Baker, superintendent of the New Hampshire School for the Feebleminded, Laconia, N. H., was elected secretary-treasurer.

Vacation Addresses.—Physicians sending notation of change of address to THE JOURNAL, including change of mailing address, should state clearly whether or not the change is temporary, on account of vacation, or whether it represents a permanent change of location. Such statement will avoid inconvenience to the physician in the receipt of mail and will aid the Directory Department in keeping satisfactory records.

Veterans of the World War.—The Medical Veterans of the World War held their annual convention at St. Louis recently. Dr. Arthur T. McCormack, secretary of the Kentucky State Board of Health, was elected president of the association and Dr. Philip E. Blackerby, Louisville, treasurer, and assistant secretary. The headquarters of the veterans will be moved from Washington, D. C., to Louisville. Dr. McCormack is the third president of the organization; the others preceding him were Dr. Frank Billings, Chicago, and Dr. Victor Vaughan, Washington, D. C.

Transfer of Leprosy Station.—The House Committee on Territories has made a favorable report of the bill recently presented providing for the transfer of the United States federal leprosy investigation station at Kalawao, Hawaii, to the Territory of Hawaii. The transfer is to include the lands and buildings, and the Secretary of Treasury is authorized to make the transfer. The station at Kalawao is now under the control of the U. S. Public Health Service. Its activities in the care, treatment and investigation of leprosy have been transferred from the Hawaian Islands to Carville, La., where the government recently purchased a leprosarium formerly owned by the state of Louisiana.

Prevention of Heart Disease.—On invitation of the Association for the Prevention and Relief of Heart Disease, New York, forty-two physicians interested in the social, educational and preventive aspects of heart disease, its treatment and prevention, met in St. Louis, May 24, to discuss the possible advantages of some form of national organization to bind together the groups already actively engaged in clinical and social study and practice in this field. The chairman, Dr. Robert H. Halsey, appointed Dr. Lewis E. Conner, New York, chairman, and Drs. James B. Herrick, Chicago, Joseph Sailer, Philadelphia, Paul D. White, Boston, and Hugh McCulloch, St. Louis, as a committee of five to prepare a plan of organization and report to those interested.

Prevention of Delinquency.—Through a special gift to the National Committee for Mental Hygiene, donated from the Commonwealth Fund, a new department has been organized, to be known as the Division on the Prevention of Delinquency. Psychiatric service will be furnished free to a number of juvenile courts throughout the country, and a demonstration clinic with a psychiatrist, psychologist and psychiatric social worker will be assigned to each court whenever possible. Investigation will be made covering a period of several years in order to deal with the problem of delinquency in special population groups. The first study will be made in Monmouth, N. J., under the direction of Dr. Victor V. Anderson, assisted by an advisory committee.

Revised Bulletin National Committee for Prevention of Blindness.—The National Committee for the Prevention of Blindness has announced that the entire subject of eye hazards in industrial occupations will be brought up to date in a revised edition of Bulletin 12 to be published by the committee. The Safety Institute of America, the National Safety Council, the American Society of Safety Engineers, and the leading ophthalmologists of the country will cooperate in this work. The growing interest among industrial executives in literature on this subject is shown in the distribution of 3,400 sets of industrial eye accident posters, and by the fact that the second edition of Bulletin 12, a volume of 145 pages, was exhausted before the close of the year. The revised bulletin with reports of typical cases and recommendations for safe practice will be published in the fall.

Medical Meetings.—The following societies will hold their annual conferences during June and July: General Federation of Women's Clubs, Chautauqua, N. Y., June 20-30.——National Conference of Social Workers, Cincinnati, June 21-29.—National Conference of Jewish Social Service, Providence, R. I., June 21.——American Association for the Advancement of Science, Salt Lake City, June 22-24.——Eugenics Research Association, Cold Spring Harbor, N. Y., June 24.——National Nursing Associations, Seattle, June 26 to July 1.——New York State Sanitary Officers and Public Health Nurses, Saratoga, June 27-28.——National Conference on Child Labor, Providence, R. I., June 27.——Conference on Health Education and the Preparation of Teachers, Lake Mohonk, N. Y., June 26 to July 1.——National Education Association, Boston, July 4.

Proposed Legislation on Weights and Measures.—Regulation and control of the manufacture, sale and use of all weights and measures are proposed in the bill introduced in the House of Representatives by Congressman Vestal of Indiana, chairman of the Committee on Weights and Measures. The bill empowers the Bureau of Standards to examine and pass upon the accuracy of all weights and measures, issuing a certificate on them. Manufacturers and owners of weights and measures have the right of appeal from the Bureau of Standards to the Secretary of Commerce and then to the federal court of appeals. The Bureau of Standards is also authorized to register and give a serial number to each type of weight or measure or measuring device submitted and approved by the bureau. A penalty is fixed for the violation of the proposed act.

Medical Women's National Association.—At the annual meeting of the association, in St. Louis, May 22-23, the following officers were elected for the ensuing year: Dr. Grace N. Kimball, Poughkeepsie, N. Y., president; Dr. Kate Campbell H. Mead, Middletown, Conn., president-elect; Drs. Martha A. Welpton, San Diego, Calif., Mary T. Greene, Castile, N. Y., and May Agnes Hopkins, Dallas, Texas, vice presidents; Dr. L. Rosa H. Gantt, Spartanburg, S. C., treasurer, and Dr. Marjory J. Potter, San Diego, Calif., secretary. A. communication was received from the American Medical Association Council on Health and Public Instruction requesting that a coordinating committee be appointed by the Medical Women's National Association to formulate plans for cooperation. This was approved by the association, and Dr. Elizabeth Burr Thelberg of Vassar College was appointed chairman.

Large Fund for Experiment.—It was announced by the secretary of the Millbank Fund, at the meeting of the National Tuberculosis Association in Washington, that between $300,000 and $400,000 of the income from $10,000,000 will be set aside by the Millbank Fund to demonstrate, in several districts, how tuberculosis can be controlled in American communities. This demonstration is prompted by the successful outcome of the tuberculosis investigation conducted for the last five years at Framingham, Mass., by the National Tuberculosis Association, and by the Home Hospital experiment conducted in New York. The purpose is to determine whether any American community, with proper organization and at reasonable expense, can reduce the tuberculosis death rate to a nominal minimum, as occurred at Framingham; and to ascertain the proper organization and per capita costs of such undertakings when applied to large cities and to rural communities. The Millbank Fund proposes to initiate a series of not more than three demonstrations in cities and communities of New York state, which will assist in their operation and support. It was also announced that in the last twelve years, since 1910, tuberculosis has claimed 21,271 male victims in New York, as against 41,097 female. The death rates in 1921 were, respectively, 123 and eighty-three per hundred thousand, the greater mortality of the men being due to the condition under which they work.

Report of Narcotic Bureau.—Prohibition Commissioner Blair has issued a summary of the activities of his bureau for the past year in the suppression of the drug traffic. The administration of the internal revenue narcotic laws has been conducted with a field force of approximately 179 narcotic agents under the direction of thirteen agents. The report shows that under this organization 2,195 violations of the law by persons not qualified to register were disclosed during the first six months (July to December, 1921) whereas 1,109 such cases were reported during the same period of 1920. During the six months, July to December, 1920, 384 persons were convicted; while, during the corresponding six months of 1921, a total of 1,109 convictions were secured, for which fines amounting to $64,083 were imposed with the aggregate of sentences totaling 918 years. The handling of cases by

the field agents and collectors of internal revenue has resulted in bringing about the settlement of all old pending cases, and all new cases are either in the hands of the United States attorneys or under compromise or further investigative proceedings. The manufacture and sale of narcotics is now better controlled by requiring accountability of manufacturers and wholesale dealers covering all drugs received, manufactured or sold. All sales are carefully scrutinized, and investigation of every physician and dispensing druggist is promptly ordered if unusual purchases are made. The system of assembling information of this character is being extended with a view of even further control.

Rockefeller Foundation.—In the president's report for 1921, the activities of the Rockefeller Foundation during that year are stated as follows:

Continued the $250,000 annual appropriation for Johns Hopkins School of Hygiene and Public Health.
Pledged $2,000,000 to Harvard for a school of health.
Contributed large sums to public health in Czechoslovakia, Brazil and the United States.
Aided the Pasteur Institute of Paris to recruit and train personnel.
Promoted the cause of nurse training in United States and Europe.
Underwrote an experimental pay clinic at Cornell University Medical College.
Opened the medical school and hospital at Peking, China, and assisted twenty-five other medical centers in that country.
Pledged $1,000,000 for Columbia University Medical Department.
Contracted to appropriate $3,500,000 for rebuilding the medical school and hospital of the Free University of Brussels.
Made surveys of medical schools in Japan, China, Philippines, Indo-China, Straits Settlements, Siam, India, Syria and Turkey.
Supplied American and British medical journals to 112 medical libraries on the continent.
Supplemented the laboratory equipment and supplies of five medical schools in Europe.
Paid expenses of commissions from Great Britain, Serbia, and Brazil.
Provided 157 fellowships in hygiene, medicine, physics and chemistry to representatives of eighteen countries.
Continued a campaign against yellow fever in Mexico, Central and South America.
Conducted demonstrations in the control of malaria in ten states.
Cooperated in hookworm work in nineteen governmental areas.
Participated in rural health demonstrations in seventy-seven American countries and in Brazil.
Provided experts in medical education and public health for many parts of the world and rendered other services to governments and voluntary societies.

LATIN AMERICA

Work of a Cuban Dispensary.—According to a report received from the Dispensario Tamayo, 7,333 patients were treated during the year 1921 in this dispensary. Only indigents were treated. It was founded by Dr. Diego Tamayo, editor of *Vida Nueva* and former secretary of public health of Cuba.

New Hospital to Be Erected.—A new hospital is under construction at La Ceiba, Honduras, and will be completed in about six months. This building will be known as the Vincent D'Antoni Memorial Hospital, in memory of Vincent D'Antoni, general manager of the Vaccaro Brothers Fruit Company, under whose auspices the hospital is being erected at a cost of $200,000. When completed this hospital will be turned over to the municipality, and will be operated as a charity institution. The main building will contain the offices, laboratory, operating rooms, etc., and there will be two adjoining buildings with fifty beds.

Porto Alegre Medical School.—According to the last report from the Medical School of Porto Alegre, Brazil, the new building for the school is approaching completion and classes will probably be held during the coming year in the new building. The staff includes about forty professors and assistants. Forty-eight different subjects are now being taught in the school and the number of pupils during 1921 was 158. During the twenty-three years the school has been in operation, 3,156 students have been enrolled and 250 have graduated. In connection with the school there has been in operation an institute of anatomy and a Pasteur Institute in which 785 patients were treated last year.

Hanson Appointed Chief of Public Health Service in Peru.—The *Crónica Médica* of Lima publishes the letter of acceptance of Dr. Henry Hanson, late of the Canal Zone, who has been appointed chief of the national public health service in Peru. He has been engaged there in directing the campaign against yellow fever, and he makes his acceptance conditional on the enforcement of certain regulations in regard to hygiene and the provision of facilities for the campaign against plague, etc. Dr. Hanson is an officer of the United States Public Health Service. Our exchange congratulates the country on the appointment of a representative of scientific medicine instead of a political appointment as has so often happened in the past.

Personal.—Prof. F. Krause of Berlin has arrived at Rio de Janeiro, where he has been invited by the medical faculty to deliver a course of lectures on surgery.——Prof. Max Nonne of Hamburg has arrived at Buenos Aires and will lecture on nervous diseases at the medical school.——Dr. Carlos A. Bambarén of Lima has been elected foreign corresponding member of the French Ligue d'Hygiène Mentale at Paris.——The Hospital Santa Ana of Lima recently celebrated with a banquet the fiftieth anniversary of the connection of Dr. Julio Gómez Sánchez with the institution which he has served for fifty years. The Sociedad de Beneficencia presented him with a gold medal, and the Academia Nacional de Medicina and the Sociedad Peruana de Cirugia sent representatives to the meeting. The Hospital Dos de Mayo also presented a desk set, and the Hospital Militar a framed address.

Medical Degree Conferred by Governmental Decree.—The *Revista Médica de Yucatán* gives the correspondence between the Yucatan Medical Society, backed by the local committee of the Mexican Medical Association, and the governor of Yucatan in regard to the arbitrary decree to the effect that a medical degree and license to practice shall be granted to the foreigner, W. A. Jemmal, without the formalities of examination or presentation of credentials, etc. The decree was signed Feb. 6, 1922, by the governor, and the Yucatan Medical Society sent telegrams at once to inform the chief of the national public health service of Mexico and the officials of the Mexican Medical Association of the matter. They also presented a formal protest to the governor and to the Yucatan legislature denouncing "this irregular proceeding which nullifies the laws and affects the prestige of the medical school." They asked that the decree be annulled. The final letter is from the chief of the Mexican public health service to the Yucatan Medical Society. It states in conclusion: ". . . Unfortunately, this department is powerless to prevent the occurrence of abuses such as the one in question, as each of the states has sovereign rights in regard to the practice of the professions, but so far as this bureau is concerned, no degree like the one in question will be registered. . . . Suffrage effective. No reelection."

FOREIGN

Conference on Infant Mortality.—A conference of the League to Combat Infant Mortality was held in Paris, France, June 6-8.

Gift for the Advancement of Science.—Sir Charles Parsons, F.R.S., has presented £10,000 (approximately $50,000), 5 per cent. war loan stock, to the trustees of the British Association for the Advancement of Science.

Graduate Course in Otorhinolaryngology.—The annual graduate course on otorhinolaryngology presented by Professor Moure at Bordeaux will be available, July 24 to August 5, following the International Congress on Otology at Paris.

The Bretonneau Celebration Postponed.—The *Paris Médical* announces that the three-day celebration of the Bretonneau centennial at Tours has been postponed from June to October. The details were given in these columns, April 1, 1922, p. 983.

International Cancer Congress.—The Congrès interallié du cancer is appointed for the spring of 1923, at Strasbourg. The topics appointed for discussion are: "Experimental Production of Cancer"; "Spontaneous and Induced Means of Defense," and "Irradiation Treatment of Mammary Cancer."

Turkish Woman Enrolls as Medical Student.—The daughter of the Turkish poet, Aga Oglu, has matriculated at the University of Constantinople. The medical department of the university is the first to admit women to its courses, and Miss Oglu is the first to take advantage of this privilege, according to a notice in the *Deutsche medizinische Wochenschrift*.

Kraepelin's Retirement.—Prof. E. Kraepelin has asked to be relieved from delivering the course on psychiatry at the University of Munich, as he wishes to devote all his energies to research on psychiatry at the special institution for this purpose, which is practically his creation. He is now 66, and has recently taken a leading part in combating alcoholism.

University Interchanges at London.—In addition to the six French lecturers previously mentioned, Dr. Murk Jansen of Holland, who recently was given the Umberto I orthopedics prize in Italy, has been invited to give an interchange lecture at the University of London. Prof. Hijmans van den Bergh

of Utrecht follows him, and Prof. C. Winkler of Amsterdam opened the series, with a lecture on the neocerebellum in man.

Theft of Infected Laboratory Animals.—The *Policlinico* relates that the director of the official antiserum and vaccine institute at Naples recently informed the police and the city authorities that a number of laboratory animals had been stolen from the establishment. The animals were rabbits, and they had been inoculated with anthrax or bubonic plague in the course of the regular production of antiserums and vaccines.

Australian Official to Study Disease Control.—Dr. H. Cliento of the Australian Department of Health arrived in New York on the *Scythia*, May 20, for the purpose of studying the methods so successfully employed by General Gorgas in Cuba and Panama, in the control of variola and malaria. Dr. Cliento is to have medical and hygienic control in New Guinea, a division of government formerly under German administration.

The German Congress on Diseases of Digestion and Metabolism.—There were 180 physicians in attendance at this congress in April, at Homburg. The next congress is to convene at the same place in 1924. The topic for competition for the next Boas prize (3,000 marks) is "Influence of Venesection on the Metabolism." Competing articles must be in the hands of the secretary, Prof. Fuld, Uhlandstr. 157, Berlin, before Dec. 31, 1923. He will give further information in regard to the conditions of the prize on demand.

Influence of Diet in Tuberculosis.—In a recent issue of the *Zeitschrift für Tuberkulose* a report was published of the mortality statistics of the health department of the German government for all cities with a population of 40,000 and over. In 1914, the number of calories consumed per capita was 2,600. This number decreased in the summer of 1916 to 1,983; in the winter of 1916 to 1,344, and in 1917 to 1,100. In 1916, the rise in tuberculosis mortality was rapid, reaching its height in 1918, and then dropping back to prewar figures.

New Medical Journal.—The International Society of Medical Hydrology has recently published a new periodical, the *Archives of Medical Hydrology*, which is printed temporarily at 36 Devonshire Place, London, England. The first issue, which appeared in May, contained a preface by Sir Clifford Allbutt, regius professor of physic, University of Cambridge. It is intended, at the earliest opportunity, to compile a bibliography of modern hydrology, i. e., balneology, crenotherapy, hydrotherapy, dating from 1800, including systematic treatises and papers of importance, arranged under subjects, authors and countries. The next number of the *Archives of Medical Hydrology* will appear in the autumn of this year, and thereafter at intervals of four months.

Twenty-Fifth Anniversary of Subcutaneous Pubiotomy.—The obstetricians and gynecologists of the medical faculty of the University of Barcelona recently celebrated the twenty-fifth anniversary of this operation by a special ceremony. It was held in a theater building, with historical addresses, lantern slides and moving pictures. The addresses and some of the pictures are reproduced in the *Archivos de Ginecopatia, Obstetricia y Pediatria* of Barcelona as a special issue devoted entirely to the anniversary. Prof. P. Nubiola discusses the present status of subcutaneous pubiotomy in different countries. The Italian surgeon, Bonardi, was the first to perform the operation, at the suggestion of Gigli, to utilize the latter's wire saw, although symphyseotomy dates from 1777.

Price of Alcohol in Germany.—Our German exchanges are lamenting the new regulations regarding the alcohol monopoly, which extend the general tax on alcohol to that used in hospitals and for similar medical purposes. Hitherto this has been exempt. The manufacturers of perfumes and cosmetics succeeded in getting the tax reduced for their use, "to protect this growing industry of perfume manufacture," and the pharmacists are allowed to use a cheaper alcohol for tinctures and fluidextracts if the process is done under the supervision of an official. The regulations provide for new officials for this purpose, and the *Medizinische Klinik* remarks that the pharmacists will shrink from the expense of this, and as a consequence the manufacture of tinctures, etc., will fall into the hands of the manufacturing chemists.

Annual Meeting of the German Psychiatry Research Foundation.—The report of the president, Professor Kraepelin, showed that donations totaling six million marks had been received during the year, including 80,000 marks from the German Medical Society of Chicago, and 20,000 crowns from the Swedish Bruzelius family. The construction of a larger building has had to be abandoned for the present, but a small building near the psychiatry clinic was secured for the records and psychologic department. Professor Plaut of the Psychiatry Research Institute delivered a lantern lecture on the "Importance of Serology for Psychiatry," especially in the diagnosis of syphilis. He related that at the psychiatric clinic, in more than 20 per cent. of all the male patients and 10 per cent. of all the women, syphilis was responsible for the mental disease. He emphasized the importance of the recent success in serodiagnosis in animals, enabling control of experimental transmission and treatment of syphilis. He also commented on the value of serodiagnosis in mental diseases of noninfectious origin.

Personal.—The Council of the British Medical Association has awarded the Stewart prize to Dr. John C. McVail of Edinburgh, Scotland, in recognition of his services to the community in the advancement of preventive medicine. Dr. McVail delivered the Lane lectures before the Cooper Medical College, San Francisco, in 1906.——Dr. Redmond Roches has been elected president of the Society of Members of the Royal College of Surgeons of England, to succeed the late Dr. J. Brindley-James.——Surg. Rear Admiral A. G. Wildey, England, has been awarded the decoration of the Crown of Italy for services rendered.——Lieutenant-Colonel Mackenzie, deputy sanitary commissioner of the Punjab, India, has been appointed professor of pathology at King Edward Medical College, Lahore.——Lieut.-Col. T. H. Symons has been appointed professor of surgery at the medical college of Madras, and superintendent of the general hospital.——Prof. Albert Calmette of the Pasteur Institute, Paris, has been offered the honorary fellowship of the Royal College of Physicians, Edinburgh, in recognition of his services to medical science.——Dr. J. F. Smith has been appointed lecturer on diseases of the skin at the University of Glasgow, to succeed the late Dr. George McIntyre.——Dr. John Macpherson, commissioner of the board of control for Scotland, has been appointed professor of psychiatry in the University of Sydney, Australia. This chair is the first of its kind in any university in Australia.

London's Venereal Disease Problem.—Col. L. W. Harrison and Dr. F. N. K. Menzies have recently compiled a report of the London venereal disease program. Two preventive measures are stated: (*a*) rendering noninfectious the greater number of infection carriers, and (*b*) discouraging, by education and general propaganda, practices which lead to exposure to infection. The first was attempted by the free treatment centers; the second was undertaken by the National Council for Combating Venereal Disease. A government grant of 75 per cent. of the expense was arranged in order that facilities provided should be available for the whole population of London, 7,659,000. Hospitals were located in various centers to treat venereal disease cases in the early and communicable stages. In a report of the work from 1917 to 1921, it is stated that the educational possibilities of the venereal disease clinic are recognized and the necessity for a general educational campaign is noted. Governmental grants have been received for this purpose and the use of many publications and motion pictures recommended by the American Social Hygiene Association are advocated by the British organization. Seven "hostels" have been established for the infected delinquent and the infected pregnant woman, which are conducted on the lines of a residential club for girls and serve to insure regular attendance at the clinic, as well as to keep the residents usefully employed in various types of work. In addition, the report recommends a further improvement in the nature of a "reception house," to provide immediate shelter for various types of cases now unprovided for. The entire program as outlined by Colonel Harrison and Dr. Menzies runs in close alinement with the measures which have proved effective in the United States.

Deaths in Other Countries

Dr. **Heinrich J. Quincke,** professor emeritus of internal medicine at the University of Kiel, whose name is connected with lumbar puncture and angioneurotic edema, aged 80.——Dr. **Wilhelm O. von Leube,** professor emeritus of clinical medicine at the University of Würzburg, noted for his works on the digestive functions and diseases, and internal medicine in general, test meal, etc., aged 80.——Dr. **N. Swoboda,** of Vienna.——Dr. **Erika Thaer,** assistant at the medical clinic of the University of Giessen.——Dr. **Manuel Iglesias y Díaz,** perpetual secretary of the Academia Nacional de Medicina at Madrid, and senator, aged 84.——Dr. **Jorge Fayet,** of Porto Alegre, Brazil, aged 72.——Dr. **J. de Haan,** formerly director of the public health laboratory in Java.——Dr. **O. Lenoir,**

surgeon to an important French railway service, aged 55.——Dr. **R. Luzzatto,** director of the materia medica institute of the University of Modena.——Dr. **G. Meschieri,** director of the hospital at Pollenza, Italy.——Dr. **W. Middleton,** dean of the profession at Valparaíso, Chile, aged 82.——The *Revista de Beneficencia Pública* of Santiago, Chile, mentions also the death of Dr. **G. Murillo Sotomayor,** who had practiced medicine at Valparaíso for fifty-one years, and of Dr. **Ramón Bascuñán Varas,** prominent in the hospital service there.

CORRECTION

Superintendent of Health of Providence, R. I.—In THE JOURNAL of June 3, it was stated that Dr. C. L. Scamman would succeed Dr. Charles V. Chapin as superintendent of health, Providence, R. I. Dr. Scamman writes that the appointment is as assistant to Dr. Chapin.

Government Services

Neuropsychiatric Problem Before Veterans' Bureau

According to compilations recently made by government officials, there are 9,027 ex-service men suffering from mental disorders in hospitals; and there are 110,000 claims for neuropsychiatric disabilities on file in the Veterans' Bureau. Thus, the Veterans' Bureau faces the large problem of restoring to mental health thousands of nervous and mentally affected veterans either in hospitals or in outpatient clinics. The bureau reports 34,554 mentally affected men who have been treated since their discharge. The Adjutant-General's Office of the War Department reports 72,000 men discharged from the service with mental disorders.

Of the recent appropriation of $17,000,000 provided by the second Langley bill, which was signed by the President in April, a large part will go to hospitals for neuropsychiatric cases. Of the appropriation of $18,600,000, passed in the first Langley bill, March 3, $7,792,000 was allotted for the construction and enlargement of neuropsychiatric hospitals. The Veterans' Bureau plans to have at least one neuropsychiatric hospital in each of the fourteen districts into which the country is divided.

The neuropsychiatric hospitals at present in operation are located at National Soldiers' Home, Marion, Ind.; Naval Training Station, Great Lakes, Ill.; West Roxbury, Mass.; Philadelphia; Perryville, Md.; Waukesha, Wis.; Augusta, Ga.; Knoxville, Iowa; Gulf Port, Miss.; Fort McKenzie, Wyo.; Bronx, New York, and Little Rock, Ark.

There are 5,500 beds in hospitals owned by the government. There are 4,500 beds in civil contract hospitals. Thus, there are 10,000 beds now available for neuropsychiatric ex-service men. With the funds provided for in the second Langley bill, the Veterans' Bureau plans to expand the capacity of hospitals to 12,000 beds. One of the problems of treatment in these cases is that of community adjustment; successful treatment is best effected in outpatient clinics. The first of these was established at Boston. Other clinics are now operating at Washington, Baltimore, Philadelphia, New York, Cincinnati and Cleveland. It is proposed to have an outpatient clinic as a part of each district hospital. Occupational therapy is a part of the treatment. The bureau has provided for men discharged from hospitals—but not capable of going into regular vocational training—by establishing neuropsychiatric trainees. These are at Silver Springs, Md.; Bellevue College, Neb.; Port Jefferson, N. Y., and Chick Springs, S. C.

Examinations for U. S. Public Health Service

Boards of officers have been appointed by Surgeon-General Cumming of the U. S. Public Health Service to meet in various cities of the country to examine candidates for entrance into the regular corps of the Public Health Service. The boards are meeting at the U. S. Marine Hospital, San Francisco; the U. S. Public Health Service building, Washington, D. C., and U. S. Marine Hospital, Port Townsend, Wash. Boards have also been named to conduct physical examinations of applicants for appointment as cadets in the United States coast guard. These boards have been convened at New London, Conn.; Philadelphia; Chicago; Washington, D. C.; Evansville, Ind.; Detroit; Mobile, Ala.; Charleston, S. C.; Seattle; Boston, and Portland, Maine.

Foreign Letters

PARIS

(From Our Regular Correspondent)

May 26, 1922.

Death of Laveran

Dr. Charles-Louis-Alphonse Laveran, professor of the Pasteur Institute of Paris, died recently at the age of 77. He was born in Paris and was the son of a professor of the school of applied medicine and pharmacy. He entered the army medical school at Strasbourg and was intern in 1866 in one of the hospitals in that city for one year, whereupon he received his degree. He was appointed associate professor at the Val-de-Grâce in 1874, and went back to the school as professor from 1884 to 1894. Meanwhile, in 1880 he had been sent to Algeria, and had made his famous discovery of the hematozoon of malaria. It was the first time that a protozoon had been recognized as an infectious agent in the diseases of man, and he encountered difficulties in having it accepted, until Italian investigation confirmed it; and the merit of Laveran's discovery was thus recognized. In explaining the various phases of the evolution of the hematozoon, Laveran showed the reason why this protozoon is inconstant in the blood. He stated that the hematozoon was transmitted to man by an insect, and, later, the works of Sir Ronald Ross, Sir Patrick Manson and Grassi corroborated his statement. Accepted at first with skepticism, this view has been fully confirmed by subsequent studies and has prompted successful prophylactic measures in countries subject to malaria. Laveran resigned from the army to become professor at the Pasteur Institute, where he continued his studies on parasitology, and especially on diseases due to the trypanosome, trypanosomiasis in particular. In 1907, he was awarded the Nobel prize in medicine. He has been a member of the Academy of Medicine since 1893, and became its president in 1919. He was elected to the Academy of Sciences in 1899. Laveran wrote several important works, the most recent being on trypanosomiasis, written with the collaboration of Professor Mesnil of the Pasteur Institute.

The American Memorial Hospital at Rheims

The laying of the cornerstone of the American Memorial Hospital at Rheims took place, May 21. Hon. Myron T. Herrick, United States ambassador, was present at the ceremony, and said, in part:

> I dedicate this American memorial hospital to the children of Rheims. It is a gift made possible through the energy and affection of the women of the United States, to help you take care of your little children. If women and children had been always and everywhere the first care of men, there would never have been war. Women hate war because they are the creators of the race and they cannot accept the idea of becoming its destroyers. But the heroic spirit, the courage and sacred duty accomplished by the women of France at the front and at the rear, were the greatest moral help of France during the years of sorrow and tribulations. . . . We are offering you our gift with the hope that you will always remember your friends from across the sea who came to you during the dark days.

Monsieur Roche, mayor of Rheims, thanked the United States and its representative in France. He recalled the numerous manifestations of American generosity for the city of Rheims and neighboring regions, to which has been added the construction of this hospital.

Gaps in Public Hygiene Regulations

One of the articles of the declaration of the rights of man says that "liberty consists in the right to do anything that is not prejudicial to others." Those who make public hygiene regulations should be inspired by such a truth. Unfortunately, several of these regulations are antiquated and were made

when machinery was not in universal use as it is today. Thus, there are many gaps to be filled. The service of inspection of noisy, dangerous and insanitary establishments is not sufficiently armed against noises of all kinds, which are a nuisance to Parisians night and day.

Numerous complaints are continually being sent to the inspection service against the use of electric sewing machines in tailor shops situated in apartments. Notwithstanding the real inconvenience of the noise made by these machines, the prefect of police was unable to act. A similar case occurred in the suburbs of Paris, where a manufacturer of automobile horns and klaxons tried out his instruments daily to the great annoyance of his neighbors, and again the police were unable to give relief to the complainants. Bad odors are the cause of most of the complaints, but in that case also the regulations are imperfect. Complaints were made against a manufacturer of articles made of "corozo" who dipped them in solution of formaldehyd to harden them. We know how irritating and noxious the vapors of formaldehyd are, but the inspectors could not do anything for the neighbors; for, although the manufacture of formaldehyd is regulated, there are no regulations concerning its use.

A report recently published by Monsieur Portier, general inspector of the service of inspection, gives some interesting figures for the year 1920. The number of authorized buildings to be inspected has increased considerably, and, from 7,680 in 1919, it reached, for Paris and its suburbs, 8,487 in 1920. To these establishments must be added cow barns, pigsties, dogs' hospitals, slaughter houses, scalding houses, etc., numbering 1,110, inspected by veterinaries belonging to the health department. A total of about 10,000 establishments are inspected by one or the other of these departments. The number of complaints in 1920 was 671, and 367 were recognized as justified. Among these complaints, 254 concerned classified establishments and 417 nonauthorized establishments. The number of justified complaints against classified establishments was only 147 out of 8,487 establishments authorized and inspected by the service of inspection, or 1.7 per cent. This shows that the main danger lies in nonauthorized insanitary establishments which cannot be classified on account of present regulations. Up to a few months ago, only seven groups of complaints were considered, but new causes for complaint have been added; as, for example, dust harmful to cattle, measures injurious to vegetation and danger from flies. But this is not sufficient, and it is obvious that laws and regulations should be enacted to fill the gaps which have escaped the foresight of legislators, and to protect the health of the public.

The Hygiene Committee of the League of Nations

The hygiene committee of the League of Nations which met recently in Paris is entrusted with the study of medical and hygienic questions of interest to all governments and requiring their active cooperation. It promotes, in a certain measure, important conferences, which are held in various countries, and studies their conclusions and transmits its opinion to the League of Nations, which, in turn, conveys it to the various governments. The committee of hygiene was called on to examine resolutions adopted by the conference recently held in Warsaw (THE JOURNAL, May 6, 1922, p. 1400). It was convened by the Polish government, but this was merely an ingenious means of overcoming certain difficulties, as Russia does not belong to the League of Nations. The conference was in reality inaugurated by the hygiene service of the league. Besides the resolutions adopted by the Warsaw conference, the hygiene committee had to study the sanitary conditions on the eastern coast of the Mediterranean, which are deplorable, on account of the important movements of population, due to pilgrimages. The program of the hygiene committee includes also the study of reports concerning tropical diseases in Africa, the exchange of sanitary personnel between nations and the centralization of epidemiologic information. The Genoa conference decided to send a petition from the International Red Cross Society to the League of Nations asking that the governments recognize the society.

Equipment of Rural Hospitals

The minister of social hygiene, public charity and social welfare has sent to all the prefects a circular concerning improvements to be made in hospitals in their departments. The circular recalls the fact that, at the very beginning of its existence, the ministry of hygiene insisted that hospitals in important centers be made to conform to the exigencies of modern science. This appeal had no effect, and the subject is taken up anew with the determination that it shall bear fruit. It is important that each department have a hospital with all modern medical and surgical equipment, with roentgenographic service, bacteriologic and organic chemistry laboratories, etc. In less important centers, hospitals should have at least operating and sterilizing rooms. Industrial centers also should have adequate equipment. The minister of hygiene asked the prefects to send him the floor plans of hospitals in their departments, with a list of their equipment and special services offered.

LONDON

(From Our Regular Correspondent)

May 29, 1922.

A Standardized Textbook of Surgery

In a letter to the *Lancet*, C. A. Morton, professor of surgery to the University of Bristol, points out how strangely contradictory the most popular textbooks of surgery are on some important points. The result is that a student who has studied one book may, in an examination, be placed unjustly at a disadvantage because he gives an answer which, while he is quite warranted in giving it, differs from the view of the examiner. In an oral examination, he might be able to justify himself to the examiner by giving his authority; but in a written examination there is no such opportunity, and many examiners do not realize how diverse are the views expressed in textbooks. Professor Morton, therefore, thinks that there should be one recognized textbook of surgery, which, for examination purposes, should be regarded as authoritative. When a new disease is described, it is sometimes difficult to decide whether a student should be expected to know about it. This difficulty would be overcome if the examiner were guided by the fact that it was included or not included in the most recent edition of the standard book. The book should be published under the direction of a committee of surgeons who are teachers. It would be written by one surgeon, but the proofs of each chapter, or section of a chapter, could be submitted to each member of the committee, who would meet and discuss it, and decide on the final form it should take. Such a committee could be appointed by the Council of the Royal College of Surgeons, and the book could be used for the ordinary examinations in surgery by the college and by any university which chose to use it.

Professor Morton gives several examples of the contradictions to be found in the most popular textbooks of surgery of the day—"Thompson and Miles," "Rose and Carless," "Gask and Wilson," and Bowlby's "Surgical Pathology." Thus, the first regards acute necrosis as essentially an acute osteomyelitis, starting in the marrow and extending to the periosteum; the second says that it starts either as a periostitis or in the medulla, or as an acute epiphysitis; and the last describes it as an acute infective periostitis, secondarily

involving the underlying bone and medulla. As to treatment, there is a similar divergence. The first advises free opening of the medulla when there is sufficient evidence that suppuration has occurred. It must be presumed that this refers to suppuration in the medulla, but we are not told what the evidence is. The second advises that the medulla be opened in all cases in which there is pus under the periosteum. The third advises, as all writers do, free incision of the periosteum to evacuate pus beneath, but, if pus is present here, does not seem to favor opening the medulla.

Insanity as a Defense in Trial for Murder

The case of Ronald True, who was convicted of murder, notwithstanding uncontested medical evidence that he was insane both at the time of his trial and when he committed the crime, was described in a previous letter (THE JOURNAL, May 27, 1922, p. 1651). The case has been taken to the court of criminal appeal. The lord chief justice, in giving judgment dismissing the appeal, said that it had been contended for the appellant that the verdict should have been "guilty but insane," and that, as the medical evidence was that he was certifiably insane when he was said to have committed the crime and as no medical evidence was called to contradict that view, the jury were bound to act on that evidence as far as insanity was concerned. In the opinion of the court, that view was not sound. The jury was entitled to say that the facts of the case taken as a whole, apart from the question as to whether the prosecution called medical evidence on the special point, satisfied it that, at the date of committing the act, the prisoner was not insane. The question was also raised as to whether the judge had put the question of insanity properly to the jury. It was admitted that he had permitted a latitude beyond the rule in the McNaughten case. But it was said that so imperfect was the law that the judge did not state, as he should have stated, the evidence for the consideration of the jury. According to the rule, every man was presumed to be sane and responsible for his crimes until the contrary was proved; and, to establish a defense on the ground of insanity, it must be proved that, at the time of the act, the accused was laboring under such a defect of reason from disease of mind as not to know the nature and quality of his act; or, if he did know it, that he did not know that what he was doing was wrong.

For the appellant, it was contended that this old and salutary rule had been superseded and altered, and that now there was, and ought to be, an extension of this kind; that although the accused might have known what he was doing and might have known that what he was doing was wrong, nevertheless, if, by reason of disease of the mind, he was unable to control his action, he was still excused. In the opinion of the court, that proposition was not accurate. It was true that an extension of the rule had at different times been suggested; in the cases quoted, that proposed extension had not been acted on or approved. In the present case, the judge clearly put it to the jury that, even if the prisoner knew the physical nature of the act, and that it was morally wrong and punishable by law, and yet was from mental disease deprived of the power of controlling his actions, the verdict should be "guilty but insane." Nevertheless, the jury found the appellant guilty of wilful murder. Apart from the question of appeal, the home secretary had certain powers which, in a proper case, were always exercised.

A British Authority's Impressions of American Science

Some time ago, the Radium Corporation of Czechoslovakia decided to employ a British expert to go to the United States to investigate recent work in that country on the treatment of disease by radium. Dr. W. S. Lazarus-Barlow, professor of experimental pathology at the Middlesex Hospital, was chosen. He has now returned, after a tour of six and a half weeks in the United States, and has given his impressions. He traveled more than 4,000 miles in that country and visited the principal cities. He says that this country and the United States are at the parting of the ways. The states have wealth and extraordinary facilities, and are now looking for the men to utilize them. In England, we have the men, but not the facilities. If the Americans can develop men of the type we have in the old country, there is no limit to the distance they can go in medical research. On the other hand, if we can provide the facilities, the quality of our men is such that we can hold our own. We cannot compete with America in facilities, but we can in brains. But if our men are not supplied with facilities for the rapidly extending medical research of the present day, we shall fall behind in the race. Such a subsidy as is placed at the service of the Rockefeller Institute is unknown in this country.

As regards the quantity of radium available for the treatment of malignant disease, the United States has an advantage of about 10 to 1 compared with us; it has 80 gm., worth $12,000,000. As for eminent men engaged in any particular branch of research, America does not fall behind any country; indeed, there is no substantial difference in this respect between the various countries interested in science. The strength of America lies in the numerous foundations for medical research, and in the number of young men devoting themselves to it. Her danger is that she may be overwhelmed by attention to meticulous detail. Given avoidance of that, there is no predicting the position she may attain in the next twenty-five to fifty years. Our danger lies, not in this direction, but in inadequate provision of facilities for young men whom we are training. At the same time, it is desirable that English lack of attention to detail be corrected somewhat, and that in this respect we take a leaf out of the book of our American cousins.

Professor Lazarus-Barlow does not desire to see here institutions as large as those in the United States, because of the amount of administrative detail that they impose on the director, taking him away from his more proper duties of research work, and also because of the large administrative staffs required. Moreover, British individualism shows itself best in institutions of moderate size. He considered that the quality of American research has improved noticeably in the last twenty years.

Professor Lazarus-Barlow wished to add a word of appreciation of the hospitality and courtesy with which he was received everywhere in America, not only by well-known persons but by the public at large.

A Birth Control Conference

An international conference on birth control will be held in London, July 11-14. The fee for membership is $2.50, but physicians can become honorary members by applying to the medical secretary, and are invited to contribute papers. The conference is divided into sections as follows: eugenics (president, Professor Macbride); economics (president, Prof. J. M. Keynes); national and international aspects (president, Mr. Harold Cox); moral and religious aspects (president, the Rev. Gordon Lang); contraceptive section (president, Dr. Norman Haire). The contraceptive section will be open only to physicians and students.

The Association of Surgeons

The third annual meeting of the Association of Surgeons was held at Leeds under the presidency of Sir Berkeley Moynihan. The association does not publish its discussions, so that speakers can express their views with perfect freedom. The chief subjects were: the early symptoms and signs

of gallstones, the choice between cholecystotomy and cholecystectomy, the association of gallstones and pancreatitis, the surgery of the parathyroids, and operations on the spine for tuberculous disease. To further the advance of surgery, it was decided to offer a medal for some outstanding contribution to surgery, in any land. A scheme to provide financial assistance for the purposes of collective information or research in surgery was sanctioned. The operative treatment of carcinoma of the tongue was chosen as the first subject. The next meeting will be held in London in 1923.

BELGIUM

(From Our Regular Correspondent)

LIÉGE, March 12, 1922.

Reforms in the Medical Service

Dr. Réné Sand has just published a report concerning reforms in the medical and welfare service. The necessity for such reforms is emphasized by the fact that medical science has made considerable progress, while medical organization has remained stationary. On the other hand, the economic side of the question is as important as the efforts made to assure quick and complete cure of patients; and it is the aim of charitable institutions to increase the productiveness of the nation. In the first place, reforms in government services would include the creation of a ministry of hygiene, charity and welfare. This would centralize all efforts, which are now scattered all over the country. This organization would control the masses by the enactment of an administrative code. Reforms in the medical service will follow the same principles. In each commune, a clinical dispensary will be the primary health center, and will control medical institutions for the poor, maternity hospitals, hospital wards (a minimum of eight beds) antituberculosis and antisyphilitic dispensaries, a dispensary for schoolchildren, consultation rooms for nurslings, and vaccination and disinfection services. Each primary center will be connected with a secondary health center, which will reproduce, on a larger scale, the plan of the primary center; all specialties will be represented and complete equipment will permit the diagnosis of disease and the treatment of patients with the most improved methods. These secondary centers will be connected with main health centers, represented by the four university hospitals. Permanent connection will be established between these three different centers, so that the best care will be given to inhabitants of the most remote villages. Each communal or intercommunal commission will be affiliated with a neighboring secondary center and will be free to attach itself to any one of the four main centers. It is desirable that primary and secondary centers be accessible to all practitioners, and that poor patients be treated gratuitously. Those belonging to associations, those injured while working, and regular patients should pay variable amounts for treatment. Physicians' fees will be paid by the welfare bureau, the associations, insurance companies or the patients themselves.

These reforms will undoubtedly increase the efficiency of medical assistance; and the moral and material interests of physicians, druggists, nurses, and midwives will be protected. A step toward more important reforms will have been taken for the protection of public health and the progress of medical defensive measures which are indispensable to the prosperity and strength of the nation.

School for Nurses

Monsieur Verge recently submitted a report explaining the government's conception of the rôle of a nurse, showing how important it is for her to follow a course in a hospital. The teaching will have a practical character, and the government demands that nurses spend some time in hospitals either during or after their studies. Two years is required for hospital and visiting nurses and one year for those who are to care for the insane. Thus, schools for nurses in Belgium will be on an equal footing with those of neighboring countries. A school can be established only in an important center, and must be attached to a modern hospital, fulfilling certain conditions and having at its disposal all medical and surgical means. Schools shall be improved, but their number shall not be increased in small localities. At the present time, the Fedération des Ecoles d'Infirmières has only six schools able to fulfil the required conditions: the Ecole des hôpitaux d'Anvers (Stuyvenberg); the Ecole Cavell; the Ecole Saint-Camille; the Ecole de l'hôpital Saint-Jean in Brussels; the Ecole des infirmières in Charleroi, and the Ecole provinciale des infirmières in Ghent. Numerous applications have been made, and many nuns have made applications on Cardinal Mercier's suggestion.

BUCHAREST

(From Our Regular Correspondent)

May 19, 1922.

Danger of Plague

All the important cities of Roumania have been informed by the chief board of sanitation in Bucharest that in the docks of Patras in Greece a plague is raging, with many fatalities. The passengers coming from Greece on ships are held in quarantine in Constantra for eight days. When leaving the port, they have to signify where they are going; and, after arrival in a Roumanian town, have to present themselves for further medical examination. By this stringent measure, they have succeeded in shutting out the plague, and up to now not one case of plague has occurred in Roumania, although there is a fairly large amount of traffic between Roumania and Greece.

The Compulsory Medical Examination of Couples to Be Married

After the introduction of many important social arrangements; the nationalization of the medical treatment of workmen; the establishing of free venereal and tuberculosis clinics in every large town; the granting of state support for invalids incapacitated for work by reason of industrial accidents, in cases in which the employers are unable to support them by reason of bankruptcy, or the company has ceased to exist, the government has sent out a commission to study the different methods of controlling the health of couples about to be married in the different states. The commission has completed its report and recommends the method practiced in North America. It proposes to forbid all matrimonial offices to wed couples unless they produce a medical certificate (from any physician of their choice), the certificate to be signed by a sanitary officer, who has the right to examine the parties if any doubt arises as to the validity of the certificate. The discussion of this question in the daily papers is prompting intelligent fathers to demand, before consenting to the marriage of their daughters, that the suitor produce medical evidence as to his general health and freedom from venereal disease. Thus, a new problem has been added to the many questions now confronting those engaged in the practice of medicine.

The Reform of the Workmen's Compensation Act in Roumania

The minister of public welfare has delegated Dr. Georg Cimponarin, the director of the central sickness club, to find out how unification of the sickness club systems may be accomplished. The newly adjoined states, namely, Transylvania, Bessarabia and Bukowina, each have a different sys-

tem. In Bessarabia there is no real system, the treatment of workmen being very primitive, both from a social and from a medical point of view. The most perfect system is the Transylvanian (late Hungarian), and therefore this will be adopted even in the old kingdom of Roumania. Dr. Cimponarin says that the most important task of the sickness club will be not only to give temporary help to the patients, but also to exercise medical control over all industrial enterprises and manufactories, and thereby prevent the industrial diseases. In the interest of disease prevention, they will hold the management of the works to the strictest observation of the rules. The protection of workmen against tuberculosis, too, will be an important task. Mothers will be granted a considerably greater support than prescribed by the law. A working mother shall be given a vacation beginning from four to six weeks previous to her confinement, and continuing until eight weeks thereafter. Infants will be under medical supervision up to a certain age. In the larger factories, day homes will be established, where working mothers can feed their babies. It is unfortunate that there is no satisfactory method as yet for protection against venereal diseases, which claim so many from the working class. According to recent statistics, every workman loses, on an average, twenty-six working days in a year on account of venereal diseases. The Central Workmen Insurance Offices have also planned the erection of sanatoriums, although the present low rate of exchange prevents building. For this reason, contracts were made with various private sanatoriums for a certain number of beds.

Roentgenology a Regular Subject in the Universities

Up to now, roentgenology has been a subject which was compulsory in every university in Roumania. However, students were not obliged to pass an examination in it. By reason of a recent resolution, the subject of roentgenology is included among the examinations, both the theoretical and the practical phases. If a student fails, he has to continue the subject for two seasons. Coincidently with this order, all university clinics have been furnished with large roentgen-ray machines of the American Snook transformer type, to enable students to become experts in roentgen-ray technic while in the clinics.

The Telephone Boycotted by Physicians

In Transylvania, the richest and most flourishing part of New Roumania, the postal management has raised the fee for telephones. Private persons pay for one year's telephone service 1,000 lei; professional men, lawyers and medical men, and in general those persons who have a signboard outside the house, that is, merchants, tailors and the like, pay 3,000 lei a year; and banks pay 5,000 lei. To this is added 500 lei yearly for the upkeep of the wiring, and every new subscriber has to pay 1,000 lei for the installation of the telephone. The medical association has sent a memorandum to the postal management asking for the reduction of the exorbitant fee of 3,000 lei (as one medical visit in the patient's home costs on an average 20 lei, the telephone fee thus equals the cost of 150 medical visits a year), in the interest of the public and the health of the people. They argued that, by reason of the high telephone fee, the number of subscribers decreased considerably, and thus the value of the telephone is illusory; but still physicians are obliged by their patients to have telephones, and it is a fair demand that they be placed on equal footing with private persons, who pay only one third, that is, 1,000 lei, for their telephones. The memorandum was refused by the ministry of commerce; thereupon the medical association held a general meeting, in which it was resolved that all physicians will give notice to the postal management that they cease subscription.

BUENOS AIRES

(From Our Regular Correspondent)

April 18, 1922.

Centenary of the Academy of Medicine

The Academy of Medicine is planning to commemorate the centenary of its organization with a series of celebrations. April 18, a public session will be held at which prizes will be given. April 19, the cancer institute, directed by the academy of medicine, will be inaugurated. Both the hospital and the laboratory of the institute are reported to be well equipped. At the same time, the corner-stone of a pavilion for experimental research will be laid. This pavilion will be built with a gift of $200,000 from the family of the late Emilio Costa.

Mediterranean Fever

For the first time, Mediterranean fever has been reported in this country. The cases, which were in Cabrera, province of Cordoba, where there are many goats, were discovered by Dr. Fornesio; and the bacteriologic and immunologic tests were made by Dr. S. Dessy, of Buenos Aires.

The Bacteriophagus

The study of the bacteriophagic principle has awakened much interest all over the world. D'Herelle states that it is a cultural, filtrable virus, having the property of dissolving bacteria (Shiga-Kruse, dysenteric bacillus, etc.). Kabeshima thinks the bacteriophagus is a ferment; Bordet and Ciuca, a hereditary weakness of germs which acquire the property of dying readily. April 6, two papers were presented on this subject before the society of biology by C. E. Pico and A. Bachmann, and L. I. Aquino. In the experiments reported in the two articles, the bacterial lysis was produced by trypsin and pancreatin; in the first instance, with boiled papayotin, and in the second, with a filtrate of the *Lachesis alternatus* poison. This lytic property was transmitted serially. These experiments apparently support the view that the bacteriophagus is not a virus, but Aquino and Bachmann think that even this fact has not been completely proved.

Hookworm Disease

The director of the Bacteriologic Institute of the National Department of Health, Dr. A. Bachmann, has verified the report that hookworm disease is prevalent in the province of Corrientes on the Paraguayan border. The disease probably also exists at Chaco and Formosa. These are the only zones in this country where people go barefooted. At Corrientes, the percentage was rather high, being 94 per cent. in some zones; and it is suspected that the general average will be 50 per cent. Dr. Bachmann has suggested preventive measures and advised treatment with chenopodium oil.

Official Inauguration of University

The Universidad del Litoral is already in operation, but it will be officially inaugurated on April 18, by J. S. Salinas, secretary of public education. The ceremonies will be held at the Rosario Medical School. The Federation of Students has vetoed the celebration, stating that the authorities appointed by the government do not fill "student aspirations" and that politics has dictated the appointments; therefore, a student strike is threatened. The personnel consists of Dr. Abalos, director; Dr. R. Araya, dean; N. Tagliavache, professor of topographic anatomy; D. Staffiere, clinical medicine; J. B. Abalos, clinical surgery; R. B. Borghi, obstetrics; J. Moreno, clinical therapeutics; M. S. Pigneto, public health; E. Carrasco, opththalmology; R. Araya, gynecology; T. Fracassi, psychoneuropathology; G. Bosch and A. Scarano, psychiatrics. In general, they are prominent physicians whose appointments

should be above objection. The only drawback is that some professors are still living at Buenos Aires, at a distance of 180 miles, and they spend at Rosario only the time necessary to attend to their class work. This is the case with the professor of physiology, who also holds chairs at La Plata and Buenos Aires. The Universidad del Litoral has a bright future, provided present deficiencies are obviated. One of the professors, A Caretti, resigned because he was not able to reside at Rosario.

BERLIN

(From Our Regular Correspondent)

May 20, 1922.

Medical Fees

The enormous and continual increase in the cost of living necessitates, from time to time, an upward readjustment of medical fees. That the public does not rejoice over the fact will be readily understood, especially since doctor bills in general are not viewed with particular delight. According to a resolution of the executive council of the Berliner Aerzte-Kammer, as announced a few days ago, the fee for an office consultation for persons in moderate circumstances will now be from 30 to 40 marks; for a visit, from 50 to 75 marks. Patients who are comfortably situated financially will be required to pay for an office consultation not less than 70 marks, and for a visit in the home not less than 100 marks. The fees for other forms of medical assistance will be figured according to the official tariff. The official organ of the social democratic party announced the increase in the medical tariff under the heading, "Sickness a Luxury." This mode of referring to the fact is quite in keeping with our present-day political and social conditions and shows that the demands on life, as lived by the educated classes, are not fully understood or appreciated; it being quite evident that, in reviewing "social" conditions, the needs of the laboring class are given first consideration. When, as was officially reported, the increase in the cost of living, for the period of March and April, amounted to more than 20 per cent.; when a pound of butter now costs from 80 to 90 marks as against 2 marks in peace times; when a decent suit of clothes costs from 4,000 to 5,000 marks, it would seem that, even in labor circles, it ought to be understood that medical fees must be advanced accordingly, in order to meet the needs of the profession. Unfortunately, however, there does not seem to be in Germany much evidence of such understanding, although, under the force of circumstances, a slight improvement is noticeable since the revolution.

The Eight-Hour Day in Relation to the Hospital Personnel

The eight-hour day as applied to hospitals came up recently for discussion at a Berlin municipal council. Professor Kirchner, a former Prussian ministerial director, expressed himself as strongly opposed to the application of the eight-hour law to hospitals. The care of patients, he stated, is not like a manufacturing industry and does not lend itself to the organization of shifts. With the strict application of the eight-hour system, even patients who are seriously ill would be attended, during the twenty-four hour period, by three different nurses; in which case, there would be no assurance that all three nurses understood the patient's condition and would put forth the necessary conscientious endeavor—there would be a danger that the patient might come to be regarded as a mere "source of revenue." In fact, it is reported that, in a hospital here in the city, a nurse declined to procure an icebag for a patient who was seriously ill, giving as the reason for noncompliance with the request that her time was almost up. There is scarcely a doubt that, before long, the patients in the hospitals (and particularly those of the laboring class) will themselves demand a revision of the present application of the eight-hour day to nurses.

Berlin University Items

When, two years ago, Professor Flügge, the hygienist, retired from his professorship, by reason of his age, Professor Uhlenhuth, who was formerly a member of the faculty of the University of Strasbourg, was, as I stated in a previous letter, offered the vacant post in Berlin, but was obliged to decline the honor because of the inadequate salary that the position paid. Later, a call was sent to Professor Hahn, head professor of hygiene in the University of Freiburg. For various reasons, no final decision in the matter was reached. In the first place, there was the problem of the poor housing conditions, which often plays such an important part in the adjustment of our affairs. Then there were financial difficulties connected with the needed improvements in the hygienic institute. There is some ground for believing that matters have now reached a final settlement and that the regrettable pilotless condition of the institute will soon be remedied.

Another appointment has been made which fills a vacancy that has existed for some time. Professor von Eicken of Giessen has been called to fill the chair of laryngology, as the successor of the late Professor Killian, formerly director of the Clinic for Diseases of the Throat. This appointment has a certain importance. As was the case after the death of the Berlin laryngologist, Prof. B. Fränkel, so, again, after the death of Killian, a movement was started to combine the laryngologic clinic and the ear clinic and to place both in charge of the director of the latter, Professor Passow. Fortunately, this plan was not consummated, for it would have impaired the quality of the instruction in laryngology.

Quadruplets

As reference to the reports of the statistical bureau will show, there has been scarcely a year, during the first two decades of the present century, in which the birth of several groups of quadruplets has not been recorded, which furnishes further evidence of the fertility of German women. In 1901, 1906, 1916 and 1919, only one group of quadruplets was born each year. However, in 1903, 1904, 1912 and 1914, there were two groups each year, and in 1905 and 1909, three groups. In 1902, there were three groups of quadruplets and one group of quintuplets. In 1908, 1910, 1911, 1915 and 1917, there were four groups of quadruplets each year, and in 1913 there were six such groups. The German people were also richly blessed with triplets during these two decades. The maximum number of triplets were born in 1904 (291), and the minimum number in 1918 (111). The year 1904 has also the largest number of twin births to its credit; namely, 26,751 out of 54,383 multiple births (individual children). While the frequency of multiple births during the past twenty years bears, in the main, the usual ratio to the total number of births, the year 1919 constitutes an exception, since, for this year, the proportion of multiple births to the total number of births was 2.68; whereas, in previous years, the proportion was, in almost every instance, under 2.60 per cent. In 1919, there were 17,333 groups among the multiple births, and 34,855 children were thus born. There were, in that year, 17,144 pairs of twins born; in 5,513 instances, both twins were boys; in 6,561 cases, there was a boy and a girl, and in 5,070 instances, the twins were girls. There were 188 groups of triplets that year; in fifty-four instances all three triplets were boys, in forty-one cases there were two boys and a girl, in fifty-two cases one boy and two girls, and in forty-one instances all three triplets were girls. The quadruplets born in 1919 were all girls.

Marriages

CHARLES EVERETT MACDONALD, Major, M. C., U. S. Army, Hoboken, N. J., to Miss Charlotte Elizabeth Griffith of Buffalo, June 2.

GEORGE FRANCIS HILTON, Wenatchee, Wash., to Miss Lillian Hanson of College Place, Wash., at Nappel, Wash., May 25.

EDWARD EVERETT H. MUNRO, Grand Junction, Colo., to Miss Blanche Calhoun of Nashville, Tenn., at Omaha, May 1.

GEORGE WASHINGTON WILHITE, Manila, P. I., to Miss Julia Marion Smith of Orange, Texas, May 25.

GEORGE H. ROCKWELL, Syracuse, N. Y., to Miss Theresa Peck of Whitney Point, N. Y., June 17.

DUDLEY ALVEY PFAFF, Indianapolis, to Miss Frances Parsons of Binghamton, N. Y., June 10.

CURTICE MACK ROSSER, Dallas, Texas, to Miss Mary Lou McGregor of Temple, recently.

ROBERT RAGLE ACRE to Miss Beulah Gibson, both of Evansville, Ind., April 27.

CHARLES DEAN URY to Miss Hazel Schulz, both of Toledo, Ohio, April 22.

FINIS LONDON to Miss Emma Downey, both of Woodburn, Ky., April 1.

Deaths

Hildegarde H. Langsdorf Carlton Lee ⊕ Carlisle, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1891; served on the medical staffs of the Harrisburg Insane Hospital, the Norristown Insane Hospital, the Tewksbury Almshouse, and the Sarah Todd Memorial Hospital; for eight years secretary of the Cumberland County Medical Society; lecturer on social and economic subjects; died, April 21, aged 53, at the University Hospital, Philadelphia, from carcinoma of the liver.

Hugh McGuire Taylor, Richmond, Va.; Medical College of Virginia, Richmond, 1878; member of the Medical Society of Virginia of which he was formerly president; emeritus professor of clinical surgery at Medical College of Virginia; formerly president of the Richmond Academy of Medicine; member of the Southern Surgical and Gynecological Association, and the American Association of Railway Surgeons; died, May 30, at his country home in Westhampton, aged 66.

Lasher Hart ⊕ South Pasadena, Calif.; Syracuse University College of Medicine, Syracuse, N. Y., 1903; served in France with the M. C., U. S. Army, with the rank of captain during the World War; member of the American Urological Association and the Clinical and Pathological Society of Los Angeles; specialized in urology; died, May 25, at the Mayo Clinic, Rochester, Minn., following an operation, aged 45.

Joseph Trimble Rothbrock, West Chester, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1868; member of the Medical Association of the State of Pennsylvania; veteran of the Civil War; professor of botany at his alma mater 1877-1893; editor of many works on botany, including "Medical Botany of North America" and "Flora of Alaska"; died, June 2, aged 83, from heart disease.

Frances Armstrong Rutherford ⊕ Grand Rapids, Mich.; Woman's Medical College of Pennsylvania, Philadelphia, 1868; in active practice in Grand Rapids for more than half a century; formerly obstetrician and gynecologist to the Blodgett Memorial Hospital; died suddenly, May 24, aged 82, from cerebral hemorrhage.

Harvey S. Wolfe, New Albany, Ind.; Kentucky School of Medicine, Louisville, 1860; Medical Department of Louisville, 1867; member of the Indiana State Medical Association; formerly editor of the Corydon *Democrat;* died, May 30, aged 89, at the home of his granddaughter at Corydon, Ind.

Leo Thomas Mullahey ⊕ Shenandoah, Pa.; Jefferson Medical College, Philadelphia, 1914; served in the M. C., U. S. Army, during the World War; honorably discharged, March 25, 1920; died, May 27, aged 31, at the St. Agnes' Hospital, Philadelphia, from meningitis.

Henry Horace Latimer ⊕ Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1885; formerly professor of dermatology, Bennett Medical College, and on the staff of the Cook County Hospital; died, June 10, aged 68, from paralysis of the throat.

Frank Elmore Constans ⊕ Brockton, Mass.; Hahnemann Medical College and Hospital of Philadelphia, 1889; consulting physician and electrotherapeutist to the Brockton Hospital; died suddenly, May 29, aged 55, from angina pectoris.

Herbert Gardner Hughes, Cambridge, N. Y.; Indiana University School of Medicine, 1918; served as ship surgeon in the U. S. Navy, during the World War; died, May 17, aged 32, from endocarditis and septicemia, at Troy, N. Y.

Wilmer Austin Tims ⊕ Cleveland; Homeopathic Hospital College, Cleveland, 1888; formerly professor of anatomy at Cleveland College of Physicians and Surgeons; treasurer of the Huron Road Hospital; died, May 19, aged 58.

Peter Wilson Frace ⊕ Hoboken, N. J.; University of Pennsylvania Medical School, Philadelphia, 1894; died, May 25, at the Fairmount Surgical Sanatorium, Jersey City, aged 61, from pneumonia following an appendectomy.

Isaac Irving Good, Bellevue, Ohio; Medical Department of Western Reserve University, Cleveland, 1892; member of the Ohio State Medical Association; died, May 26, aged 57, at Battle Creek, from cerebral hemorrhage.

Joseph B. Waples, Georgetown, Del.; University of Maryland School of Medicine, Baltimore, 1868; formerly a member of the city council and the board of education; died, May 19, aged 75; from cerebral hemorrhage.

John Woodson Caines ⊕ Cuyahoga Falls, Ohio; Baltimore Medical College, 1905; served as lieutenant in the M. C., U. S. Army, during the World War, honorably discharged, May 16, 1919; died, June 5, aged 42.

James C. Bishop, Omaha; John A. Creighton Medical College, Omaha, 1899; member of the Nebraska State Medical Association; died, May 14, aged 53, at the Swedish Mission Hospital, from erysipelas.

Edmund Franklin Saxon, Winder, Ga.; Atlanta College of Physicians and Surgeons, Atlanta, Ga., 1905; member of the Medical Association of Georgia; died, May 1, aged 44, from cerebral hemorrhage.

Emmett Flagler, Troy, N. Y.; Albany Medical College, N. Y., 1865; veteran of the Civil War; for several years state inspector of public works; died, May 31, aged 82, following a long illness.

Milton William McMurrey, Houston, Texas; University of Pennsylvania School of Medicine, Philadelphia, 1910; member of the State Medical Association of Texas; died, May 23, aged 38.

Burton Theodore Norall, Minneapolis; University of Nebraska College of Medicine, Omaha, 1921; intern at the Abbott Hospital; died, April 18, aged 26, from septic sinus thrombosis.

Augustus Erdman Marden ⊕ Phoenix, Ariz.; Boston University School of Medicine, Boston, 1889; for eleven years physician at the Phoenix Indian School; died, May 19, aged 58.

Tyre H. Dinwiddie, Higbee, Mo.; Missouri Medical College, St. Louis, 1879; member of the Missouri State Medical Association; died, May 21, aged 63, from cerebral hemorrhage.

Marietta Ellis Monroe Flanders, Hopkinton, N. H.; College of Physicians and Surgeons, Boston, 1894; member of the New Hampshire Medical Society; died, April 30, aged 61.

Byron Ferguson, Kanorado, Kan.; Barnes Medical College, St. Louis, 1898; died, May 22, aged 55, at the St. Luke's Hospital Association, Denver, from pneumonia.

John Henry Childs ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1905; died, May 23, aged 40, from pneumococcic meningitis.

Amos Virgil Cooper ⊕ Modale, Iowa; Drake University College of Medicine, Des Moines, Iowa, 1905; died, May 22, aged 41, at the Lord Lister Hospital, Omaha.

Emanuel Walton Snyder, Marysville, Pa.; Jefferson Medical College, Philadelphia, 1889; for several years president of the school board; died, May 21, aged 64.

⊕ Indicates "Fellow" of the American Medical Association.

William Lowry, Teague, Texas; University of Nashville Medical Department, Nashville, Tenn., 1861; Confederate veteran; died, May 20, aged 87, from senility.

Overton Leonidas Baker, Ronceverte, W. Va.; Medical Department, University of Louisville, 1894; died, May 11, aged 60, from uremia and chronic nephritis.

Percy Lawrence DeNoyelles, Albany, N. Y.; Albany (N. Y.) Medical College, 1920; on the staff of the Albany Hospital, where he died, May 23, aged 28.

Arthur M. Gerow, Cheboygan, Mich.; University of Buffalo Department of Medicine, 1868; member of the Michigan State Medical Society; died, May 21, aged 76.

M. A. Taylor, Torras, La.; Louisville Medical College, Louisville, Ky., 1883; member of the Louisiana State Medical Association; died, May 21, aged 63.

Nelson Stiles, Medford, Okla.; College of Physicians and Surgeons, Baltimore, 1882; died, March 21, aged 65, at Wichita, Kan., from heart disease.

John Henry Stanton, Chariton, Iowa; Rush Medical College, Chicago, 1892; member of the Illinois State Medical Society; died, May 27, aged 59.

Edmund Jennings Lee, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1876; died, May 25, aged 68, from heart disease.

William Ross Clark ✠ East Liverpool, Ohio; Columbus Medical College, Columbus, Ohio, 1881; died recently, aged 63, from cerebral hemorrhage.

Scott Fraser Hodge, Detroit; University of Michigan Homeopathic Medical School, Ann Arbor, 1900, died, May 31, aged 45, from pneumonia.

Isaac Le Roy Mansfield, Oroville, Calif.; Philadelphia University of Medicine and Surgery, Philadelphia, 1869; died, March 23, aged 74.

Angus Alexander Mackintosh, North Fairfield, Ohio; Cleveland Homeopathic Medical College, Cleveland, 1901; died, April 18, aged 56.

Milton C. Sprague, Summerford, Ohio; Cincinnati College of Medicine and Surgery, Cincinnati, 1874; died, March 24, at Columbus, aged 72.

Herbert Edwin Baright ✠ Saratoga Springs, N. Y.; University of Michigan Medical School, Ann Arbor, 1893; died, May 27, aged 54.

Thomas F. Reed ✠ Massillon, Ohio; Medical Department of the Western Reserve University, Cleveland, 1893; died, May 27, aged 51.

Walter Joseph Henesey, Los Angeles; Medical Department, University of California, San Francisco, 1899; died, May 27, aged 44.

Charles Wolff Smith ✠ Townsend, Mont.; Medical Department of the University of Cincinnati, 1904; died, May 20, aged 55.

Frank S. Sturdevant, Vanoss, Okla.; Medical Department, University of Tennessee, Nashville, 1891; died, May 25, aged 60.

Henry Orlando Marcy, Jr. ✠ Newton, Mass.; Medical School of Harvard University, Boston, 1897; died, May 29, aged 51.

John Friederick Muller, Brooklyn; Eclectic Medical College of the City of New York, 1877; died, June 3, aged 75.

Russell Clifford Edwards, Newark, Ohio; College of Physicians and Surgeons, Baltimore, 1892; died, April 13, aged 59.

Francis H. Schell, Cincinnati; Homeopathic Medical College of the State of New York; died, April 21, aged 81.

Mivinda M. Wheeler, Noblesville, Ind.; Beach Medical Institute, Indianapolis, 1885; died, May 26, aged 74.

Seymour Harry Smith ✠ Omaha; Medical Department, Omaha University, 1891; died, April 18, aged 53.

Benjamin F. Bennett, Fullerton, Ky.; Eclectic Medical Institute, Cincinnati, 1881; died, May 9, aged 79.

Benjamin S. Burton, Valdosta, Ga.; Atlanta Medical College, Atlanta, Ga., 1891; died, May 7, aged 55.

Charles M. Smethers, Spiceland, Ind.; Illinois Medical College, Chicago, 1903; died, May 31, aged 42.

Ira J. Baker, Logansport, Ind. (licensed, Indiana, 1897); died, May 24, aged 88, from uremia.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

VITA ZEST NOT ADMITTED TO N. N. R

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary

Vita Zest, sold by the Vita Zest Co., Inc., New York City, comes in the form of capsules. It is said to be composed of 83⅓ per cent. dried brewers' yeast and 16⅔ per cent. of "highly concentrated vitamin extracts (Fat Soluble A, Water Soluble B and Water Soluble C)." It is claimed that "the vitamin extracts are concentrated from various fruits, greens, cereals, such as have an abundance of vitamin." The amount of material in each capsule is not declared nor is any information offered to show that the amount (or potency) of the three vitamins said to be contained in the vitamin extract is determined or controlled. In the advertising circular which accompanies the trade package it is asserted:

"Prominent physicians have recognized the wonderful effect following the taking of yeast and have recommended its use in the treatment of intestinal disturbances, autointoxication, chronic constipation and in all stomach disorders."

This statement is not warranted by the facts and ascribes therapeutic properties to Vita Zest which it does not possess. Further, the small number of physicians who have advocated the ingestion of yeast as a therapeutic measure, advise doses much larger than those presented by Vita Zest. The contents of each capsule weigh about 0.4 gm. (6 grains); hence, there cannot be present more than 0.34 gm. (about 5 grains) of dry yeast. In this circular it is asserted that:

"In addition to improving the condition of the system in general, the continued use of Vita Zest will help to produce a clear complexion and keep the skin in a healthy condition free from disfiguring pimples, boils and blackheads."

Even if it could be shown that Vita Zest contained appreciable amounts of vitamins, the most enthusiastic advocates of the administration of vitamin extracts would scoff at such claims as these.

The Council declared Vita Zest inadmissible to New and Nonofficial Remedies, because (1) its composition is indefinite, (2) it is exploited under unwarranted therapeutic claims and in a manner which tends to its indiscriminate use and (3) because the name suggests its haphazard use as a general tonic.

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

East India Capsules.—The Hollander-Koshland Co., Baltimore, Md., shipped in July, 1919, a quantity of "East India Capsules" that were declared misbranded. The federal chemists reported that analysis showed the capsules to contain, essentially, sulphurated vegetable oil, copaiba, and oils of cinnamon and santal. The product was falsely and fraudulently represented as an effective treatment of gonorrhea, when, in truth and in fact, it was not. In July, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9662; issued Jan. 7, 1922.*]

Zerbst's Cough Sirup.—The Zerbst Pharmaceutical Co., St. Joseph, Mo., shipped in December, 1918, a quantity of "Zerbst's Cough Sirup" which was misbranded. The Bureau of Chemistry reported that the product consisted of a caramel-colored sirupy liquid containing alcohol, water, sugar, chloroform, licorice and other plant principles and small amounts of tartar emetic, morphin, hyoscyamin and a

magnesium salt. The stuff was falsely and fraudulently represented as an effective treatment and cure for asthma, croup, whooping cough, bronchitis, inflammation of the lungs and throat and all other diseases of the throat and lungs. In March, 1921, the Zerbst concern entered a plea of guilty and was fined $10 and costs.—[*Notice of Judgment No. 9717; issued Jan. 11, 1922.*]

Craemer's Calculus Corrective.—The Wm. Craemer Medicine Co., St. Louis, Mo., shipped in June, 1915, from Missouri to Wisconsin, a quantity of "Craemer's Calculus Corrective" which was misbranded. The federal chemists reported that analysis showed the preparation to be an alkaline watery solution composed essentially of potassium, sodium, ammonium, phosphate, chlorid, citrate, salicylate and a small amount of saccharin. It was falsely and fraudulently represented as a remedy for gallstones, stones in the kidneys and stones in the urinary bladder. In April, 1921, a plea of *nolo contendere* was entered and the court imposed a fine of $25 and costs.—[*Notice of Judgment No. 9790; issued Jan. 11, 1922.*]

CRAEMER'S
CALCULUS
CORRECTIVE
CONTAINS NOT OVER ⅓ OF ONE PER CENT. SACCHARIN.
SERIAL NUMBER 3425A
A Celebrated Compound for
GALL STONES, STONES IN THE KIDNEYS, STONES IN THE URINARY BLADDER OR GRAVEL, BILIOUSNESS,
Sallow Complexion, Jaundice and all Stomach Troubles resulting from Biliousness.
MANUFACTURED BY
WM. CRAEMER MEDICINE CO.,
3212 HEBERT ST. ST. LOUIS, MO.

Salax Compound. — The Salax Water Co., Excelsior Springs, Mo., shipped in September, 1919, a quantity of "Salax Compound," which was misbranded. The federal chemists reported that analysis showed the product to consist chiefly of a mixture of sodium sulphate (Glauber's salt), baking soda, sodium acid phosphate, together with smaller amounts of common salt and washing soda. It was falsely and misleadingly represented that the product was derived from Salax water, a mineral water at Excelsior Springs, when it was not and did not resemble Salax mineral water and was, in fact, radically dissimilar to it. Furthermore, it was falsely and fraudulently represented as an effective treatment and cure for indigestion, catarrh of the stomach, rheumatism, loss of energy, inflammation of the gallbladder, appendicitis, etc. In December, 1920, a plea of guilty was entered on behalf of the Salax Water Co. and the court imposed a fine of $100 and costs.—[*Notice of Judgment No. 9723; issued Jan. 11, 1922.*]

Some K K K Medicine Co.'s Products.—The K K K Medicine Co., Keokuk, Iowa, shipped in June, October and September, 1919, quantities of "Dr. Machin's K K K So So Se," "K K K Pectus Balm," "K K K Tonic," and "K K K Laxative Perio."

K K K So So Se was, according to the federal chemists, a dark brown, water-alcohol solution consisting chiefly of sugar and glucose with a small amount of creosote, methyl salicylate, red pepper, oil of sassafras and plant principles. It was falsely and fraudulently represented as a preventive and cure for gallstones, ringworm, malaria, ulcers, loss of nervous energy, kidney and liver trouble and various other things.

K K K Pectus Balm was, according to chemists, a brown, water-alcohol solution consisting chiefly of sugars and small amounts of ammonium chlorid, benzoic acid, tartar emetic, saccharin, bitter plant principles, traces of camphor and oils of anise and eucalyptol. It was falsely and fraudulently represented as an effective remedy and cure for all bronchial troubles, whooping cough, pleurisy, pneumonia, croup and asthma.

K K K Tonic, according to the chemists, was a water-alcohol solution containing sugar with small amounts of emodin-bearing (laxative) drugs, bitter plant extractives, pepsin, and traces of cinchona alkaloids, hydrochloric acid, and oils of cloves and cassia. It was falsely and fraudulently represented as an effective cure for indigestion, all stomach troubles, nervousness, female troubles of every description, piles, etc.

K K K Laxative Perio was found by the chemists to be a watery-alcohol solution of sugar, sodium phosphate, laxative drugs and small amounts of plant principles, saccharin and oils of orange and anise. It was falsely and fraudulently represented as a cure for headache, malaria, nervous troubles, spasms, etc. In April, 1921, the K K K Medicine Co. entered a plea of guilty and was fined $50 and costs.—[*Notice of Judgment No. 9735; issued Jan. 11, 1922.*]

Paradise Oil and Tarina Carbolized Salve.—The California Good Health Co. of Louisville, Ky., shipped in October and November, 1919, a quantity of "Paradise Oil" and "Tarina Carbolized Salve," which were misbranded.

Paradise Oil, according to the federal chemists, consisted essentially of a combination of sulphuretted linseed oil and turpentine. It was falsely and fraudulently represented as an effective remedy and cure for kidney, liver, bladder and rheumatic troubles, dropsy, gallstones, palpitation of the heart, headache and a number of other things.

Tarina Carbolized Salve, according to the chemists, was a dark green, semisolid ointment composed essentially of petrolatum with small amounts of carbolic acid and oil of tar. It was falsely and fraudulently represented as an effective cure for croup, ulcerated sore throat, eczema, granulated eyelids, inflamed lungs, whooping cough, mumps, etc.

In March, 1921, the California Good Health Company entered a plea of guilty and was fined $50.—[*Notice of Judgment No. 9748; issued Jan. 11, 1922.*]

Cummings' Pill-Mass.—The F. P. Cummings Co., Roanoke, Va., shipped in November, 1918, a quantity of "Cummings' Pill-Mass" which was misbranded. The Bureau of Chemistry reported that the stuff contained copaiba, volatile oils, vegetable extractives and a salicylic acid compound. The product was falsely and fraudulently represented as a remedy for gonorrhea, gleet, stricture, catarrh of the stomach, falling of the womb, pain in the back and enlarged prostate, all diseases of the kidneys, bladder, urinary organs, etc. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9731; issued Jan. 11, 1922.*]

Correspondence

"THE PHYSIOLOGIC AND THERAPEUTIC ACTION OF LIGHT"

To the Editor:—Please give a detailed explanation of Dr. Hess' dictum that "the therapeutic effect of the sun's rays is almost entirely nullified by passage through window glass." Plants grow well under glass and photographic films are sensitive to light, which passes through heavy glass lenses.

JOHN H. STONE, M.D., Washington, D. C.

[This letter was referred to Dr. Hess, who replies:]

The correspondent takes for granted that the influence of sunlight on plant growth, as well as its photographic power, can be used as a measure of its therapeutic value, and that a factor which nullifies one of these qualities must have the same effect on all. This is by no means the case. As shown by laboratory experiments, rats can be protected regularly from rickets by daily short exposures to direct sunlight. If, however, rats which have been reared under identical conditions are placed in a box constructed of glass and exposed to sunlight, no protective effect is obtained, and all the animals develop rickets. The glass box used in this experiment had sides and a top composed of flint glass 5 mm. in

thickness. Similar experiments, using the mercury vapor quartz lamp, gave the same result. Rats receiving direct irradiation for three minutes at a distance of 3 feet were all protected, whereas those which were treated with rays which had traversed a filter of window glass (2.6 mm. in thickness) all showed rachitic lesions of the epiphyses. These developed even when the latter group received many times the minimal protective dose of radiation.

These laboratory experiments accord well with clinical experience. Irrespective of diet—for example, certified raw milk—rickets developed in infants brought up under ideal conditions, in glass cubicles having a southern exposure. On the other hand, infants were even cured of rickets when placed on the porch outside the cubicles, and exposed to the direct rays of the sun.

Rollier has had a similar experience in relation to tuberculosis. He has been unable to bring about cures when patients were exposed to sunlight in rooms enclosed in glass, but obtained his remarkable results when the sun's rays were allowed to impinge directly on the skin.

The therapeutic effect of sunlight in rickets is due largely to its ultraviolet rays. As is well known, these rays are filtered out by ordinary window glass, a fact which well explains our laboratory and clinical observations.

A. F. HESS, M.D., New York.

"TYPHOID FEVER IN THE UNITED STATES"

To the Editor:—In your Tenth Annual Report on Typhoid in the Large Cities of the United States in 1921 (THE JOURNAL, March 25) the following corrections should be made:

The outbreak of approximately 100 cases with but two deaths in Minneapolis in March, 1921, was one of paratyphoid fever instead of typhoid fever, as stated on page 891. The statement that the "cause was traced to a woman employee in the kitchen of the cafeteria" is without foundation. While it is entirely possible that a well carrier or a mild case of the disease which entirely escaped attention may have given rise to the outbreak, a most careful epidemiologic study fails utterly to show that such a conclusion is entirely logical. When our complete epidemiologic report is published, what is believed to be a proper criticism of the university authorities regarding their supervision of persons engaged in food handling will be made. Until published, we believe that any criticism of the university authorities in this regard is unwarranted.

A. J. CHESLEY, M.D., St. Paul.
Executive Officer, Minnesota State Board of Health.

[COMMENT.—It is unfortunate that the full data concerning the Minnesota epidemic were not available when THE JOURNAL article was published. The complete epidemiologic report, we regret to say, is not yet available, although the epidemic is now more than one year past.—ED.]

RABIES IN GEORGIA—"DEATH OF PIONEERS IN RESEARCH ON TROPICAL DISEASE"

To the Editor:—Under the head of Georgia Medical News in THE JOURNAL, May 27, it is stated that there is an epidemic of rabies in this state. Your correspondent reports that 2,147 persons received the Pasteur treatment during the last year, this being 1,708 more than in 1910. The explanation for these statistics is that our state board of health has a loose method of giving every one antirabic treatment who has been bitten by a dog. This precedent was established by Dr. H. F. Harris about twenty years ago, and has been kept up since. This may not be harmful to the individual treated, but it puts our state statistics on this matter in a warped situation. Dr. Harris, about fifteen years ago, stated in a discussion on rabies at the Medical Association of Georgia that it was his policy to give antirabic treatment to every person bitten by a dog. In my opinion this is a pernicious course from the standpoint of statistics, but Dr. Harris' successor has seen fit to pursue the same policy.

I am sure there are few states in the Union that could not show a record of 2,147 persons bitten by a dog during a year, but most of the health officers of the respective states pursue the sane policy of not treating all these persons for rabies.

In reference to your editorial on "Death of Pioneers in Research on Tropical Disease" (THE JOURNAL, May 27, p. 1647), I wish to state that it is timely. But in reference to the follow-up work after Laveran's discovery of malarial parasites, the greatest of all was done by Marchiafava and Bignami. The report which these two men made on malaria (Twentieth Century Practice, New York, William Wood & Co.) in my opinion is the greatest monograph written in medical literature.

The report of their experimental work done in the Campagna near Rome in 1898-1899 is a masterpiece so thoroughly perfected that but little has been added to the knowledge of malaria and the malarial parasites since. That report could now be used as a textbook in teaching the subject of malaria.

One is stricken with awe when one thinks what these two men added to medical science. They, Laveran and Ross, should be thought of jointly in the present status of malaria.

E. C. THRASH, M.D., Atlanta, Ga.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SGAMBATI REACTION IN PERITONITIS

To the Editor:—What is the Sgambati reaction in the urine in cases of peritonitis? LOUIS B. FARRI, Wheeling, W. Va.

ANSWER.—O. Sgambati of Rome recently called attention anew to the color reaction in the urine when the peritoneum is defending itself against bacterial invasion. It is thus a sign of peritonitis. He first published it in the *Policlinico* of March 1, 1920, p. 267. The test tube is filled to one third with urine, and then, as it is held very slanting, 2 or 3 c.c. of nitric acid is poured down the wall, a drop at a time, so that, without mixing with the urine, it settles to the bottom of the tube. In about a minute, the zone of contact between the acid and the urine shows—above the orange yellow halo visible in normal urine—another, a grayish blue halo that spreads upward. The light must fall on the tube against a light background. After chloroform has been added and the tube has been agitated, it is set aside for the chloroform to settle. The grayish blue tint gradually changes to a ruby red, which is permanent. The reaction is extremely sensitive, and the urine must be fresh and the nitric acid pure. Sgambati adds that there is a minimal amount of the chromogen present in normal urine, and hence with high specific gravity it is better to dilute the urine a little.

Therapeutic Puncture of Tuberculous Lung.—L. Vercelli writes to the *Gazzetta degli Ospedali* **42**:1212, 1921, to call attention to the benefit which followed two punctures of the lung in a case in which he had tried to apply pneumothorax but had found that conditions rendered this impossible. The improvement after the apparently futile punctures was pronounced, the young man throwing off the disease by a crisis, he says, like that under serotherapy of pneumonia or diphtheria. The needle had been introduced at several points each time.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 11. Chairman, Dr. Samuel W. Welch, Montgomery.

ARIZONA: Phoenix, July 6-7. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

CALIFORNIA: San Francisco, June 26. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

COLORADO: Denver, July 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Hartford, July 11-12. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, July 11. Sec., Eclec. Bd., Dr. James Edwin Hair, 730 State St., Bridgeport. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Wilmington, June 20. Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

DISTRICT OF COLUMBIA: Washington, July 11. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

HAWAII: Honolulu, July 10. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

ILLINOIS: Chicago, June 26. Supt. of Registration, Mr. V. C. Michels.

INDIANA: Indianapolis, July 11-13. Sec., Dr. W. T. Gott, State House, Indianapolis.

KANSAS: Kansas City, June 20. Sec., Dr. Albert S. Ross, Sabetha.

MAINE: Augusta, July 5-6. Act. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MARYLAND: Baltimore, June 20-23. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, July 11-13. Sec., Dr. Samuel H. Calderwood, 144 State House, Boston.

MISSISSIPPI: Jackson, June 20-21. Sec., Dr. W. S. Leathers, University.

NATIONAL BOARD OF MEDICAL EXAMINERS. Written examination in Class A medical schools. Parts I and II, June 19-23 and Sept. 25-29. Sec., Dr. John S. Rodman, 1310 Medical Arts Bldg., Philadelphia. Applications for the June and September examinations must be sent in, respectively, by May 15 and June 1.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, July 10-11. Sec., Dr. R. E. McBride, Las Cruces.

NEW YORK: Albany, Buffalo, New York City and Syracuse, June 26-29. Assistant, Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 26. Sec., Dr. Kemp P. B. Bonner, Morehead City.

NORTH DAKOTA: Grand Forks, July 4-7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OKLAHOMA: Oklahoma City, July 11-12. Sec., Dr. J. M. Byrum, Shawnee.

OREGON: Portland, July 4. Sec., Dr. Urling C. Coe, 1208 Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 11. Sec., Mr. Thomas E. Finnegan, State Capitol, Harrisburg.

RHODE ISLAND: Providence, July 6-7. Sec., Byron U. Richards, State House, Providence.

SOUTH CAROLINA: Columbia, June 27. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

SOUTH DAKOTA: Waubay, July 18. Director, Dr. H. R. Kenaston, Bonesteel.

TEXAS: Austin, June 20-22. Sec., Dr. T. J. Crowe, 918-919 Dallas County Bank Bldg., Dallas.

UTAH: Salt Lake City, July 5. Director, Mr. J. T. Hammond, State Capitol, Salt Lake City.

VERMONT: Burlington, June 21-23. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 20-23. Sec., Dr. J. W. Preston, 511 MacBain Bldg., Roanoke.

WASHINGTON: Olympia, July 11. Sec., Mr. William Melville, Olympia.

WEST VIRGINIA: Martinsburg, July 11. State Health Commissioner, Dr. W. T. Henshaw, Charleston.

WISCONSIN: Milwaukee, June 27-29. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Pennsylvania January Examination

Mr. C. D. Koch, Professional Credentials Bureau, Bureau of Medical Education and Licensure of Pennsylvania, reports the written and practical examination held at Philadelphia, Jan. 3-7, 1922. The examination covered 5 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 61 candidates examined, 56 passed and 5 failed. One candidate was licensed by reciprocity, and one candidate was registered on the basis of military service. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
Howard University		(1920)	1
Hahnemann Medical College and Hospital of Chicago		(1917)	1
Loyola University		(1918)	1
Baltimore Medical College		(1909)	1
Johns Hopkins University		(1911)	1
University and Bellevue Hospital Medical College		(1909)	1
Jefferson Med. Coll.		(1913), (1917), (1918), 1919), (1920, 13)	17
Medico-Chirurgical of Philadelphia		(1901)	1
Temple University		(1919, 3), (1920, 3)	6
Univ. of Pennsylvania		(1907), (1918), (1919, 3) (1920, 9)	14
Woman's Medical College of Pennsylvania		(1919), (1920, 2)	3
University of the South Medical Department		(1906)	1
Medical College of Virginia		(1915), (1917)	2
University of Liverpool		(1897)	1
University of Strassburg		(1888)	1
National University, Athens		(1917)*	1
University of Padua		(1917)*	1
University of Rome		(1916)*	1
University of Turin		(1920)*	1
	FAILED		
Starling Medical College		(1894)	1
Eastern University School of Medicine		(1913)	1
Hospital College of Medicine, Louisville		(1903)	1
University of Catania		(1919)*	1
University of Messina		(1905)*	1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Jefferson Medical College		(1919)	Ohio

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Medico-Chirurgical College of Philadelphia		(1915)	U. S. Army

* Graduation not verified.

Minnesota January Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, Jan. 3-5, 1922. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 41 candidates examined, 40 passed and 1 failed. Twenty-one candidates were licensed by reciprocity. Three candidates were licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado		(1902)	81.2
University of Minnesota		(1917) 87.5, (1918) 85.2, 86.3, (1922)* 84.8, 85.4, 86.4, 86.9, 86.9, 87, 87.1, 88.1, 88.5, 88.9, 89.6, 89.8, 89.9, 90, 90, 90, 90, 90.2, 90.3, 90.5, 90.7, 90.7, 90.8, 91.5, 92, 92.1, 92.2, 92.4, 92.6, 93.6, 95.3	
Woman's Medical College of Pennsylvania		(1919)	87.9
McGill University		(1916)	88.4
University of Toronto		(1915)	90
Harvard Medical School, Shanghai		(1917)†	84
National University of Ireland		(1918)	78.3
	FAILED		
Kansas City Medical College		(1901)	57.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Stanford University		(1921)	California
Georgetown University		(1915), (1920)	Dist. Colum.
George Washington University		(1918)	Dist. Colum.
Bennett Medical College		(1911)	Illinois
Rush Medical College		(1916) So. Dakota, (1920), (1921, 2)	Illinois
Indiana University		(1916)	Indiana
Tulane University		(1919)	Louisiana
Johns Hopkins University		(1917) Maryland, (1920)	Texas
University of Michigan Medical School		(1915)	Michigan
Marion-Sims College of Medicine		(1901)	Louisiana
Washington University		(1918)	Illinois
University of Nebraska		(1918)	Nebraska
Cornell University		(1915)	California
University of Cincinnati		(1920)	Ohio
University of Pennsylvania		(1920)	W. Virginia
University of Christiania		(1897)	S. Dakota

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Tulane University		(1917)	N. B. M. Ex.
Johns Hopkins University		(1916)	N. B. M. Ex.
University of Pennsylvania		(1917)	N. B. M. Ex.

* These candidates have finished the medical course, and received their M.B. degrees, and will obtain the M.D. degree after they have completed a year's internship in a hospital.

† Graduation not verified.

Arizona January Examination

Dr. Ancil Martin, secretary, Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, Jan. 3-4, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom passed. Six candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University		(1921)	90.7
Tulane University		(1919)	84.4
University of Texas		(1919)	82.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago		(1898)	Iowa
St. Louis University School of Medicine		(1916)	Missouri
Miami Medical College		(1878)	Colorado
National School of Medicine		(1910)*	Mexico
School of Medicine, Morelia		(1915)*	Mexico
University of San Marcos, Lima		(1907)*	Peru

* Graduation not verified.

Book Notices

Das Tuberkulose-Problem. Von Hermann v. Hayek, Privatdozent, Dr. Med. et Phil. Innsbruck. Second edition. Paper. Price, 78 marks. Pp. 391. Berlin: Julius Springer, 1921.

Hayek considers that he has written a pioneer book, which, he believes, will be accepted as a textbook when tuberculosis has come to be studied according to the principles of immunity, infection and resistance. The problem of tuberculosis, he says, will be well on the road to solution when the world studies it in the light of the principles noted. At present, "tuberculosis is a battle between the tubercle bacillus seeking its sustenance in the human tissues and the body cells which resist. This battle begins with the first defensive reaction and ends when the victory of the parasite has caused the destruction of vital organs. And only with the beginning of the end is instituted present day treatment of tuberculosis." For this delayed treatment, the influence of pathologic anatomy is blamed by Hayek. He holds that one cannot estimate the true constitutional damage by the extent of the disease present in the given case. The best results are shown to be obtained when, given an open case, all contacts are examined and held for years under observation. During this time, Hayek would pursue a course of immunization with a view to preventing breakdown in later life. He regrets that so much of effort and money is spent on patients with far advanced cases, declaring that if one tenth of the sum annually spent on sanatorium care were devoted to dispensaries for immunization of contacts, the problem of tuberculosis would near its end. Repeatedly, he refers to infection as a matter of dose, on the one hand, and of resistance, on the other. One will admit the soundness of this postulate. Returning to pathologic anatomy, Hayek thinks that it has had its day in the study of tuberculosis; when we had no further knowledge than that of the gross lesion and some understanding of the cell, the study of pathologic anatomy was proper; now however, we have information as to the chemistry of the cell, and many of its characteristics heretofore concealed are open to us, so that it behooves us now to study the cell and, through the cell, the organism, in the light of resistance and immunity. The book contains many pages of absorbing interest for clinician, sociologist and biologist. It is a curious mixture of science, fact, argument and, it must be said, criticism of those who have disagreed with the author.

Traité d'Urologie. Par G. Marion, Professeur Agrégé a la Faculté de Médecine de Paris. 2 volumes. Cloth. Price, 120 francs, net. Pp. 1050, with 433 illustrations. Paris: Masson et Cie, 1921.

Except for the fact that the scrotum and its contents are wholly omitted from discussion, this work presents a rather complete summary of urologic information. The anatomy of the genito-urinary tract is thoroughly reviewed and excellently illustrated. This division of the book is followed by carefully described technical methods of examination of the various anatomic divisions of the urinary system. It is stated that results obtained by the phenolsulphonephthalein test agree exactly with determinations according to the Ambard "constant." Details of experimental polyuria are described, and the now popular concentration tests are not omitted. The importance of chemical examination of the blood is emphasized in its bearing on urologic cases. Symptomatology includes subjective as well as objective symptoms. For example, pain is divided into renal, ureteral, vesical, prostatic and urethral pain. Pollakiuria, imperative urination, retention, are separately and concisely discussed. In the division on pathology the illustrations of gross as well as microscopic pathology are for the most part reproduction of drawings rather than photographs. Renal tuberculosis occupies thirty-four pages. The chapter on renal tumors is approached from the French point of view, and is marked by a looseness of definition and peculiarity of classification which is apparently satisfactory only to Gallic pathologists. Here, particularly, photomicrographs would offer a distinct improvement over the drawings accompanying the text. In the chapter on renal stone, the injection of sterile oil through a ureteral catheter is favorably recommended in treatment. By this method many stones will pass in a relatively short time. Gradual dilation of the ureter by sounding, which is also recommended, is a procedure of certain value.

In the second volume, lesions of the urethra and of the prostate are thoroughly discussed. Prostatic hypertrophy and its complications are well illustrated. Some of the drawings are familiar, having been taken from Albarran's splendid work. The last half of the second volume is devoted to the surgery of the genito-urinary tract. There is nothing new in the procedures which for the last two decades have been considered standard. The muscle-splitting incision for exposure of the kidney is not presented. The advice to continue the usual kidney incision anteriorly in the presence of a large kidney might be challenged by some American operators who prefer to enlarge the incision posteriorly. Subcapsular renal operations are discussed in relation to the presence of a marked chronic perinephritis. Suture of the pelvis of the kidney after pyelotomy is not recommended as a routine procedure. Under the caption of operations on the bladder, cystoscopy is fully discussed. In a chapter entitled "Reconstruction of Urethra by Circular Urethrorrhaphy," a method of end-to-end suture of the posterior urethra is described which apparently has two distinct disadvantages: (1) the shortening of the urethra, which is unnecessary, and (2) the likelihood that the suture line will not hold, even though a retention catheter is passed from meatus to bladder.

Plastic work on the penis for fistulas and deformities is excellently described and illustrated, and one is inclined to hope that the results achieved are in keeping with the attractiveness of the theoretical considerations in this extremely difficult part of operative urology.

Perineal prostatectomy is dismissed in two pages. Suprapubic prostatectomy following Freyer's technic, occasionally slightly modified, is well described. The radical removal for carcinoma of the prostate inclusive of the seminal vesicles, vasa deferentia and part of the bladder is discussed at length. Colored plates at the end of the second volume beautifully illustrate normal and pathologic conditions of the bladder and urethra. On the whole, this work is an excellent addition to urologic literature.

An Introduction to the Study of the Protozoa With Special Reference to the Parasitic Forms. By E. A. Minchen, M.A., Ph.D., F.R.S., Professor of Protozoology in the University of London. Cloth. Price, $8.50, net. Pp. 520, with 194 illustrations. New York: Longmans, Green & Co., 1922.

This work, which was originally published in 1912, is unquestionably one of the most valuable books in the field, and has been in such demand that the original edition was exhausted some years ago. The demand for it has been such that the publishers have found it necessary to provide a second impression. This is apparently identical with the original and in certain respects behind the times, for in the interval there have been significant additions to knowledge in many parts of the field. Nevertheless, there has not yet appeared in English any work of equal scope, nor, indeed, any one of narrower compass that stands on an equal plane for breadth and thoroughness of treatment. The somewhat more than five hundred pages are filled with helpful suggestions for both the teacher and the student; and a repeated perusal of the work only lends emphasis to the deep regret felt by all for the untimely death of the brilliant protozoologist who was its author.

Pathologische Physiologie. Ein Lehrbuch für Studierende und Arzte. I. Abteilung: Die Funktionsstörungen des Herzens, der Gefässe und des Blutes. Von Dr. H. E. Hering, Professor der Pathologischen Physiologie in Köln. Paper. Price, 39 marks. Pp. 120. Leipzig: Georg Thieme, 1921.

The subjects here considered are the functional disturbances of the heart, the blood vessels and the blood. Each is considered as to etiology, pathogenesis and consequences. The treatment of these topics is comprehensive, systematic and scientific. The book when completed will probably be a good companion book to that of Krehl on the same subject.

Medicolegal

Testimony as to Value of Services Not Conclusive

(Sweeney v. Banham (N. Y.), 191 N. Y. Supp. 186)

The Supreme Court of New York, Appellate Term, First Department, says that the plaintiff, a physician and surgeon, brought this action to recover on a quantum meruit, or what they were worth, for services rendered a third party, on the claim that the services were rendered at the request of the defendant and on his promise to pay therefor. The answer was a general denial. The proof showed that the patient was in no way related to the defendant, and not even a member of his household; that the contract in question was made by a woman who claimed that she was authorized by the defendant to engage the plaintiff's services. A judgment was rendered in favor of the plaintiff. The judgment rested practically on the testimony of the woman, which, it seems to the court, was at complete variance with a letter that she sent to the defendant some time prior to the commencement of this action. But, while the issue, on the evidence submitted, required submission to the jury, in view of the inherent improbability of the authorization of the plaintiff to bind the defendant for his services, the court should have granted the defendant's motion to set aside the verdict rendered for the plaintiff. Furthermore, this court thinks that reversible error was committed in the trial court's refusal to charge the jury that they were not bound by the plaintiff's testimony as to the value of his services. It is an elementary fact that testimony as to the value of professional service is mere opinion evidence. While the jury must consider such testimony in the respect named, it remains for them, nevertheless, to assess the damages themselves. In view of the fact that the verdict as rendered in this case was for the amount claimed, it could not fairly be said that the jury might not have been misled by the court's refusal to charge as requested. It followed, therefore, that the judgment should be reversed as against the weight of evidence, and a new trial granted, with costs to the defendant, to abide the event.

Mental Effect of Epilepsy and Nephritis

(Platt v. Platt et al. (Mo.), 236 S. W. R. 35)

The Supreme Court of Missouri, Division No. 1, in affirming a judgment upholding the will of one John H. Platt, holds that there was no error in a refusal to instruct the jury that it is a matter of common knowledge that epilepsy, whether it be what is known as grand mal or petit mal, is a mental disease, and is in the arteries or blood vessels of the brain, and that the questions to be determined in this case were whether the mind of John H. Platt was so affected by this disease or by nephritis if the jury believed from the testimony that he had both or either, as to render him incapable mentally of making a will. The court says that the evidence showed that in 1893, when Platt was a minor, he was taken to a hospital for the treatment of mental and nervous diseases, suffering from a disorder there diagnosed as "idiopathic epilepsy," induced by a recent sunstroke, from which he recovered and was discharged in about four months. During his manhood, he was attacked by nephritis, which caused his death in December, 1914. This disease was characterized by intermittent paroxysms of great pain, accompanied at times by apparent mental disturbance; and the requested instruction evidently had in view a connection between this fatal disease and the epileptic symptoms or conditions manifested in the disorder for which he was treated at the hospital.

The statement in the instruction that epilepsy is a mental disease, and is in the arteries and blood vessels of the brain, was evidently intended to impress the jury with the theory that epilepsy in all its forms was a mental disease having its seat in the brain structure, and was therefore insanity, and whatever the person so afflicted should think or determine was therefore the product of a diseased mentality. In other words, it assumed that the man was mentally unsound as a foundation on which to consider the case. There being no evidence in the record to this effect, the instruction proposed to dispense with evidence by assuming the truth of the proposition as a matter of common knowledge. Moreover, the court doubts whether there is one person in a hundred who understands the meaning of the French words "grand mal" and "petit mal," as used in connection with epilepsy, and that still fewer have heard that it is characterized by a lesion of the blood vessels of the brain. That this disease is not insanity was truly said by this court in *Turner* v. *Anderson*, 260 No. 23, 168 S. W. 943, and so eminent an authority as Clevenger, in his book on insanity (p. 1045), says that "two-thirds of my petit mal cases do not suffer intellectual impairment." Nor was there, in the court's opinion, any evidence that there was a recurrence of epileptic symptoms in this case after the prompt recovery of the patient reported by the hospital in which he was treated. The whole theory of the instruction seemed to have been that it might stand as a substitute for evidence connecting the subsequent ailment with this epileptic attack. The instruction was properly refused.

Again, the court says that the mention of epilepsy in connection with the execution of this will showed no purpose other than the malign influence the terrible word might have on the jury. This was evidently in mind in the preparation of the requested instruction, in which it was not sought to submit any question relating to epilepsy to the jury, but simply to conjure by the magic of the name. The only evidence of any mental disturbance from the time of Platt's discharge from the hospital to the day of his death referred to intermittent paroxysms incident to nephritis. These were called "eleptiform" in the testimony, and were the result of uremic poisoning. The court searched the testimony with care, and failed to find in it the relation of any incident that indicated mental deterioration or lack of careful consideration of business acts and operations. It needs no argument to show that proof that one's mind is occasionally weakened by suffering or disease is not sufficient to void an act done while that condition does not exist. The evidence was therefore insufficient in this respect to disturb the verdict.

Concerning Ship's Physician—Hospital Presumed to Have Roentgen-Ray Instrument

(Leone v. Booth S. S. Co., Limited (N. Y.), 133 N. E. R. 439)

The Court of Appeals of New York says that the plaintiff, who was a seaman on a steamship owned by the defendant, fell from a mast and dislocated his shoulder and fractured the greater tuberosity of the humerus. On board was a competent ship's physician. For his negligence, if any, the defendant was not responsible. On his advice, received in good faith, the master might rely. On it, the master might act. So acting, no liability could be predicated on error or mistake. The physician discovered and reduced the dislocation, but did not find the fracture. He told the plaintiff, however, that at the first port of call he would take him to a hospital and examine him by means of the roentgen ray. Six days later, the ship reached Barbados, where there was a hospital; but the master refused to send the plaintiff ashore, because he feared the British authorities would discover that the ship was equipped with wireless—at that time forbidden. The court holds that it may assume that in the hospital was a roentgen-ray instrument. They are in general use. It is common knowledge that such photographs are constantly taken in every hospital. It was to prefer shadow to substance to make the result of this action for damages depend on affirmative proof of this matter. Had the apparatus been used, it may be inferred that the fracture would have been discovered. The trial judge submitted two questions to the jury: whether the master was negligent in failing to send the plaintiff to a hospital in one of the ports at which the ship touched; and whether the master failed to act with reasonable prudence in requiring him to perform work which he was not in fit physical condition to perform. A verdict was rendered for the plaintiff, judgment on which was reversed by the appellate division, and the complaint dismissed; but the judgment of the appellate division is now reversed, and that of the trial court affirmed.

Society Proceedings

COMING MEETINGS

Colorado Congress of Ophthalmology and Oto-Laryngology, Denver, July 28-29. Drs. M. D. Brown and J. M. Shields, Metropolitan Bldg., Denver, Secretary.

Florida Medical Association, Havana, Cuba, June 30. Dr. Graham E. Henson, Jacksonville, Secretary.

Idaho State Medical Association, Wallace, July 10-11. Dr. E. E. Laubaugh, Overland Bldg., Boise, Secretary.

Maine Medical Association, Portland, June 27-28. Dr. B. L. Bryant, 265 Hammond St., Bangor, Secretary.

Montana, Medical Association of, Great Falls, July 12-13. Dr. E. G. Balsam, 222 Hart-Albin Bldg., Billings, Secretary.

New Jersey, Medical Society of, Spring Lake, June 20-22. Dr. William J. Chandler, South Orange, Secretary.

Southern Minnesota Medical Association, Rochester, Minn., June 19-20. Dr. Aaron F. Schmidt, Physicians and Surgeons Bldg., Minneapolis, Secretary.

Wyoming State Medical Society, Sheridan, June 20-21. Dr. Earl Whedon, Sheridan, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Seventh Annual Meeting, held in Washington, D. C., May 2-4, 1922

The President, DR. HERBERT C. MOFFITT, San Francisco, in the Chair

Some Points in Physical Diagnosis

DR. DAVID RIESMAN, Philadelphia: Movable dulness in the chest is not always an evidence of fluid in the pleural cavity. The value of ulnar percussion in detecting gallbladder and kidney tenderness, and the value of clavicular and transdigital auscultation in the diagnosis of cardiac diseases are points to be remembered.

Clinical Signs of Paralysis of the Intercostal Muscles

DR. C. F. HOOVER, Cleveland: That one of the functions of the intercostal muscles is to modify the breadth of the intercostal spaces has become an axiom in medical literature. The Hamberger model is devised to illustrate this particular function. The mistake in Hamberger's conception is that he represented the ribs by radii of rotation of successive segments of ribs. To make his model truthfully represent the excursion of the ribs, he should have added a transverse structure to the ends of the radii. Such a model shows the interspaces in the upper half of the thorax to narrow with inspiration and in the lower half to widen. The want of extensibility of the parietal pleura shows that widening of the interspaces cannot be one of the purposes for action of the intercostal muscles. The two sets of intercostal muscles are not differentiated because their functions differ, but because the thresholds of employment for the two differ. The external intercostals have the lower threshold for inspiration and the higher for expiration. The intercostals have the higher threshold for inspiration and the lower for expiration. Integration of the intercostals with the scaleni and serratus posticus superior gives an inspiratory effect to action of both intercostal muscles; and action of the abdominal muscles, triangularis sterni and serratus posticus inferior gives an expiratory effect to action of both external and internal intercostals.

DISCUSSION ON PAPERS OF DRS. RIESMAN AND HOOVER

DR. EMANUEL LIBMAN, New York: The method Dr. Riesman described for ascertaining the presence of an inflamed gallbladder will be of particular value when the tenderness is located in the usual position. There are cases, however, in which the only tenderness to be found is in the epigastrium, being then due to a reflex disturbance in the muscles. The tenderness found in the hypochondriac region in cases of cholecystitis is, of course, also muscular in origin. To determine whether there is really a tender mass present or whether the tenderness is simply a diffuse tenderness in the muscles, I palpate the mass and try to locate a definite lower border. If present and especially if movable, one is dealing with a tender mass, not simply with tender muscles. If a mass is present and the tenderness is not due to a reflex disturbance in the muscles, thrusting the fingers downward from the border will not cause pain; a direct backward thrust at the border will be slightly, if at all, tender, whereas a thrust upward will be definitely painful. This simple method can be used in the diagnosis of tender masses elsewhere in the body. As regards the finding of an accentuation of the second aortic sound in other places than the second right intercostal space, it is of interest to note that in 1803 Curschmann pointed out that the finding of a second sound accentuated in other places than over the aortic orifice was of value in establishing a diagnosis of atherosclerosis of the thoracic aorta.

DR. GEORGE W. NORRIS, Philadelphia: It is still not generally appreciated that in cases of pleural effusion movable dulness due to change in the fluid level does not occur immediately, but often from twenty to forty minutes elapse before complete gravitation occurs. Sudden change of dulness with change of posture should always make one suspect the presence of air as well as fluid in the pleural cavity. This has long been recognized clinically and has received definite corroboration from roentgen-ray studies. There are still a number of inadequately explained phenomena associated with the second sound of the aorta. Not only may it lack accentuation in cases of hypertension, but the reverse is also true. Definite accentuation may occur without increase of arterial pressure. This is especially common in cases of syphilitic aortitis. I have found Dr. Riesman's method of transdigital auscultation most useful in determining the exact time of the cardiac sounds.

DR. W. S. THAYER, Baltimore: Last year we encountered an instance of pleural transudate in a case of Hodgkins' disease, with a remarkable and immediate displacement of fluid on change of position. No air was demonstrable in the pleural cavity, either clinically or by fluoroscopic examination. In but one instance, in which the study was not so careful, have I seen a similar phenomenon. As to its explanation, I am not clear. For years I have taught that a reasonable dulness, which was immediate and of a high degree, was diagnostic of pneumothorax. In the great majority of cases this is true. But there are rare exceptions.

DR. T. R. BOGGS, Baltimore: I had an opportunity to observe the rapid movement of fluid in the absence of air in the thoracic cavity in a case in which there was extraordinary marked proliferative pleuritis with great thickening and rigidity of the visceral pleura over the contracted lung. The fluid moved quite rapidly on changing from the recumbent to the erect position.

In Behalf of the Stomach Tube

DR. REGINALD FITZ, Rochester, Minn.: Ambard's formula of urea excretion in the urine has been applied to the "free" acid figure of the gastric contents in a series of 1,039 cases in which Ewald meals were given in an effort to correlate the volume of the gastric contents aspirated and the percentage concentration of hydrochloric acid. By interpreting acidity in this fashion, it was possible to divide the results from this series into three groups. The normal group included an error of 13 per cent., the pathologic cases so included consisting of gastric or duodenal ulcer and rarely of gastric cancer. The group of hyperacidity without stasis showed that 50 per cent. were associated with gastric or duodenal ulcer, chronic cholecystitis or appendicitis. The group of hyperacidity with stasis showed an organic basis for this finding in 86 per cent. Stasis determined by the tube was as true an indicator of the stasis subsequently found at operation by the surgeon as was stasis revealed by the roentgen ray. These facts recall the present clinical importance of our oldest and most simple laboratory procedures.

The Pathology of Toxic and Nontoxic Adenomatous Goiters

DR. LOUIS B. WILSON, Rochester, Minn.: True exophthalmic goiter can be divided into three stages: (1) early stage, with moderate increase in basal metabolism, often moderate exophthalmos, moderate thyroid enlargement, moderate hyperplasia, and diffuse hyperemia of the gland; (2) advanced

stage, with high metabolic rate, marked exophthalmos, marked nervous syndrome, marked thyroid enlargement, advanced hyperplasia, diffuse hyperemia, but little if any stored colloid, and (3) the late stage, with high, but sometimes declining metabolic rate, marked nervous syndrome; but there is now marked colloid storage, with less hyperemia. The gland is not nodular. Distinct from this picture is a slow developing type, with increased metabolic rate, but no ocular change, and very frequently associated with nodular thyroids. This Plummer has called hyperfunctioning adenoma. An effort has been made to determine the difference between the two groups of cases, and to sort patients with symptoms from those without. Two groups at the extremes of the metabolic series have been chosen. Group A included patients with enlarged nodular thyroids, with symptoms of hyperthyroidism, but no exophthalmos, no nervous syndrome, with metabolic rate 20 or more above normal. Group B included patients with enlarged nodular thyroids, without hyperthyroid symptomatology and with metabolism rates within 10 points of normal. About 250 thyroids in each series were studied microscopically. Group A cases showed parenchymal cell hypertrophy with some colloid storage. Grossly the glands are: (*a*) diffuse colloid without new follicle formation, or (*b*) colloid with new follicle but no capsule formation, or (*c*) definitely encapsulated areas. These are all of moderate degree. These cases differ in kind and in degree from true exophthalmic goiter. The colloid is passing into the circulation from the parenchymal cells. The parenchymal cells are not under high functional pressure, discharging secretion directly into the vessels. In the new follicle-forming type, we cannot find evidence that this is the essential factor in hyperthyroid symptoms, as even when this picture predominates, there are many areas of colloid absorption by reactivated parenchymal cells. Group B showed no evidence of cell hypertrophy or hyperplasia. The cases could be divided more or less into three groups paralleling those of glands from the hypertrophic series. A few were proliferating adenomas. Disturbance of metabolic rate is the true index of hypothyroidism and hyperthyroidism. Thus the hypertrophic and hyperplastic cells in Group A are responsible for increased metabolic rate, while in Group B there is no substance secreted sufficiently to increase metabolism. One can consider the hypothesis then that symptoms of nonexophthalmic hyperthyroidism are caused by absorption of complete thyroxin secreted in previously stored colloid, but more slowly than in exophthalmic goiter. stored colloid does contain thyroxin, and the colloid is transmitted from the follicles to the circulation. In true exophthalmic goiter the symptoms may be caused by incompletely elaborated thyroid secretion. This harmonizes with many clinical findings. However, it may be discovered that the disease, true exophthalmic goiter, is primarily a lesion of the nervous system, and that thyroid hyperfunction is a secondary development.

Nonpuerperal, Presenile Osteomalacia with Peculiar Selective Involvement of Certain Vertebrae

DR. LLEWELLYS F. BARKER, Baltimore: A middle-aged woman noticed that she had been growing shorter, and she suffered from pains, especially in the trunk, on movement. Roentgenograms revealed that there was a marked loss of calcium in the bones, and definite diminution in size of at least three of the vertebrae. The disorder in this case is related to endocrinal disturbance, more than one of the glands of internal secretion being involved.

Tetany in the Adult

DRS. WILDER TILESTON and F. P. UNDERHILL, New Haven, Conn.: Three cases of tetany in the adult were studied. The first was that of a woman with acute nephritis and acidosis, who was given large doses of sodium bicarbonate by mouth and intravenously. The second and third cases were in ill nourished women with chronic intestinal disease. All three showed a considerable alkalosis, the carbon dioxid combining power of the blood being 80, 77 and 90 per cent. by volume, respectively. In the first case this is explained by the heavy alkali administration. In the other two cases the reason is not clear. In the third case there was only 50 per cent. normal serum calcium. Metabolic study of this case showed a calcium storage, no calcium being passed in the urine, and the excretion was only through the intestine. Urinalysis showed high ammonia nitrogen, both relatively and absolutely; also a large amount of indican and phenol. In the second case the blood calcium figure was normal at the time when the tetany was latent. In the first case no estimation was made.

DISCUSSION ON PAPERS OF DRS. BARKER AND TILESTON AND UNDERHILL

DR. JOHN HOWLAND, Baltimore: In infantile tetany we have found a marked diminution of the calcium concentration of the serum with complete regularity. The sodium concentration is unchanged, while the potassium is only slightly increased. In adult tetany, however, one finds no decrease in the calcium of the serum. Indirect evidence suggests that the apparent inconsistency may ultimately be explained on the basis of diminution in the concentration of ionized or physiologically active calcium in both infantile and adult tetany.

DR. L. A. CONNER, New York: Are the roentgen-ray findings in osteomalacia sufficiently characteristic to distinguish it readily from metastatic malignant disease? I assume, of course, that the latter possibility has been entirely excluded in Dr. Barker's case, but I have been much impressed in some cases of metastatic carcinoma with the tendency to involve only scattered vertebrae and with the remarkably slow and relatively benign course that some of these cases run.

DR. REGINALD FITZ, Rochester, Minn.: Has Dr. Tileston any blood calcium figures in his cases just before and after the intravenous administration of calcium? A comparison of such figures might give evidence of calcium deficiency in the body, despite the fact that the blood calcium concentration was within normal limits.

DR. L. F. BARKER, Baltimore: The roentgen-ray findings were characteristic, and the calcium deficiency was an outstanding feature of the bone lesions.

DR. WILDER TILESTON, New Haven, Conn.: We did not make any determinations of calcium in the blood after the intravenous injection of calcium. We looked for guanidin in the urine in one of these cases, but found none, and I did not mention the subject at all because the method used in determining this substance is not reliable, and the results obtained by Paton and his co-workers have never been confirmed.

(To be continued)

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION

Annual Meeting, held at Washington, D. C., May 1, 1922

(Concluded from page 1840)

A Study of Certain Factors Affecting the Basal Metabolism

DR. JAMES H. MEANS and W. G. LENNOX, Boston: Observations were made of the effect on the basal metabolic rate of such factors as movement of the subject, transfer to the laboratory and operating amphitheater, the immediate effect of operation, and day to day variations in the rate of normal and thyrotoxic subjects. Emotional disturbance produced a sharp but transient increase in oxygen consumption. The rise of metabolism following a standard breakfast was higher but less prolonged in subjects with an elevated metabolism than in those with a normal or lowered metabolism. Thyroid extract was given to a subject, and a curve charted expressing the daily metabolic rate. The height of this curve was not altered materially by the administration of quinin hydrobromid. The effect of giving suprarenal cortex is being studied.

The Clinical Toxicology of Quinidin

DR. ROBERT L. LEVY, New York: The untoward effects observed, both in this hospital and elsewhere, may be grouped under six headings. 1. Unpleasant symptoms. In the order of frequency, these were: headache, palpitation, nausea or

vomiting, epigastric distress, giddiness, diarrhea, precordial pain, fever, tinnitus aurium, mental depression, flushing and sweating. 2. Heart failure. One of the early effects of quinidin is acceleration of ventricular rate. The tachycardia so induced may result in the occurrence of the signs and symptoms of heart failure. 3. Rhythms indicating intoxication of the heart muscle. In quinidin as in digitalis therapy, the appearance of frequent ectopic ventricular beats is an indication to desist from further exhibition of the drug. If the warning is not heeded, ventricular tachycardia may ensue, even after comparatively small doses, i. e., 12 gm. This irregularity, difficult to diagnose with accuracy save by the electrocardiographic method, is of great clinical significance because it may be at times the immediate precursor of ventricular fibrillation. We have recorded it in five of twenty-five cases of auricular fibrillation. 4. Sudden collapse. Four cases are reported in the literature, in all of which the patients recovered. There has been unconsciousness, with temporary cessation of heart and respiration. 5. Embolism. Seven instances are recorded, in two of which the patients have died. A necropsy was performed in one case which occurred in the Rockefeller Hospital. The embolus lodged in the brain three times, in the lung twice, in the lung, kidney and popliteal artery once, and in the spleen once. Of the last fifty patients with auricular fibrillation admitted to this hospital, twenty-five have received quinidin, and twenty-five have been treated with digitalis. In the group receiving quinidin, embolism occurred once; in the group not receiving the drug, it occurred five times. The danger of embolic phenomena after establishment of normal rhythm by quinidin is probably exaggerated. 6. Sudden death. There are three instances in which sudden death occurred shortly after the establishment of normal rhythm. The necropsy in our own case did not reveal the cause of death. The cases in our series in which the sinus rhythm was not restored and in which untoward effects were observed were distinguished clinically by the fact that in all there was conspicuous cardiac enlargement. This may be taken as evidence either of serious derangement of cardiac mechanics by valvular disease or of extensive myocardial involvement, or perhaps of both. It is suggested that patients with large hearts, especially with multiple valve lesions, are unfavorably predisposed and that they be treated with caution.

The Total Circulating Volume of Blood and Plasma in Chronic Anemia and Leukemia

DR. NORMAN M. KEITH, Rochester, Minn.: Blood and plasma volume determinations were made in twenty-four cases presenting definite evidence of chronic disease of the blood-forming organs, including chronic anemia and leukemia. The volume determinations were made by the dye method of Keith, Rowntree and Geraghty. In a group of twelve cases of pernicious anemia the plasma volume was found to be increased in six, the amount ranging from 66 to 81 c.c. per kilogram. The corresponding blood volumes were rarely increased. In general, the highest plasma values were found in patients showing a low hemoglobin percentage, although no absolute relationship could be demonstrated. The highest plasma volume, 81 c.c. per kilogram, was found in a patient when the hemoglobin was 41 per cent. In several of these patients, changes in hemoglobin percentages were associated with definite variations in plasma volume. In the remaining six cases of pernicious anemia, the figures for plasma volume were from 52 to 63 c.c. per kilogram, and the blood volume from 64 to 82, the former values being within normal limits and the latter slightly lower than normal. Two cases of secondary anemia were studied. In one, a case of Banti's disease, there was a distinct increase in both blood and plasma volume. Before a systematic volume study in chronic leukemia, an experiment in vitro with blood from a case of splenomyelogenous leukemia failed to show that any appreciable amount of the dye, vital red, was taken up by the leukocytes during a blood volume determination. Of the ten cases of chronic leukemia studied, six were splenomyelogenous in type. Each type showed considerable variation in the plasma and blood volume, though the most marked changes occurred in the splenomyelogenous cases. No exact relation between plasma volume, hemoglobin percentage or leukocyte count was noted. In only one of the four cases of lymphatic leukemia was the plasma and blood volume notably increased. The basal metabolic rates were determined in all cases of leukemia. In the splenomyelogenous type, all were definitely elevated. On the other hand, in the lymphatic cases, two were raised, while the others had rates of plus 9 and plus 12. The highest plasma volume, 68 c.c. per kilogram, was found in a case with the rate plus 9. No absolute relation, therefore, was found in this small series between plasma and blood volume and the basal metabolic rate. Wide variations in blood and plasma volume were thus observed in twenty-four cases, presenting definite evidence of chronic disease of the blood-forming organs. These variations were sometimes noted in the same patient. Certain cases of chronic anemia showed a striking increase in the volume of plasma; others showed a normal plasma volume. In all cases the total blood volume was rarely increased, but often reduced. On the other hand, in chronic leukemia the blood volume was almost invariably increased and the plasma volume often reached a high figure, especially in the splenomyelogenous type.

A Theory of the Mechanism of Chlorid Ion Transfer from Plasma to Corpuscles with Increasing Carbon Dioxid Tensions

DR. THOMAS E. BUCKMAN, and HAROLD T. EDWARDS, Boston: No satisfactory explanation has yet been afforded to account for the transfer of chlorid ion from plasma to corpuscles with increasing carbon dioxid tensions and the reverse change with diminishing carbon dioxid tensions. Guerber, Koeppe and Hamburger seem to have been contented with the supposition that carbonic acid is capable of uniting with sodium chlorid to form sodium bicarbonate and hydrochloric acid. Fridericia seems to assume that this reaction takes place, and states that "the more the carbon dioxid tension, and the hydrogen on concentration, increases, the more the hemoglobin turns alkaline and the more its power to combine with carbon dioxid increases," and presumably, also its power to combine with hydrochloric acid. The only substance likely to be present in the blood which would be capable of effecting the formation of bicarbonate from sodium chlorid and sodium bicarbonate is an amin or amid, and it is postulated that the reaction is similar to that which takes place in the manufacture of sodium bicarbonate in the Solvay process. We have shown that bicarbonate is formed with increasing carbon dioxid tensions from sodium chlorid and mixtures of amins and organic acids. If the quantity of sodium chlorid, amin and acid is kept constant, it is found that there is an optimal initial concentration of bicarbonate for a given increment of carbon dioxid tension. A similar optimum exists for plasma. From the result of certain preliminary experiments, the following equation seems tentatively to satisfy the conditions for plasma.

$$\triangle [NaHCO_3] = K \times \left(-154.1 + 7.33\,[NaHCO_3] - \frac{[NaHCO_3]^2}{12}\right)$$

$\triangle [NaHCO_3]$ = the increase in per cent. by volume of bound carbon dioxid in passing from a carbon dioxid tension of 40 mm. to 70 mm.
$[NaHCO_3]$ = the initial concentration of bicarbonate at 40 mm.

Further experiments with proteins and mixtures of plasma and corpuscles are in progress.

The Mechanism of Hay-Fever

DR. FRANCIS M. RACKEMANN, Boston: Hay-fever is a typical example of the many varieties of natural sensitiveness. The mechanism depends on the fact that the cells contain specific antibodies which are not present in the cells of normal individuals. That the symptoms are not due to a lack of function which is normally present is indicated by the absence of any antitoxin in the blood, such as occurs with a positive Schick test in diphtheria. That the symptoms are not due to circulating antibodies which have a constant action either on the antigen or on the cells is shown not only by the inability to demonstrate such antibodies in the blood but also by the analogy in serum disease, in which the establishment of fixed cellular antibodies, as demonstrated by the skin test, is later uninfluenced by the disappearance of circulating antibodies. The great variations in the results of specific treatment by a given technic are readily explained by the variations in the degree of sensitiveness, although it is evident

that the delicacy of the skin test is only a crude measure of the number of cellular antibodies. Finally, all attempts to demonstrate antibodies fixed to the red blood corpuscles of the patient by adding antigen to these corpuscles and watching for hemolysis have failed. It seems worth while to call attention to the close relation between the mechanism of allergy and of immunity. Specific antibodies are present in both conditions. In allergy, these antibodies are predominantly fixed in the cells: in immunity, the antibodies are predominantly in the circulating blood. However, in neither condition are the antibodies in one location exclusively. In allergy, the symptoms depend probably on reactions which take place in the cells. Immune guinea-pigs show no reaction to injection of the specific antigen, in spite of the fact that, as shown by Manwaring and Kusama, their cells do contain fixed antibodies. This phenomenon is to be explained by the protection afforded by the excess of circulating antibodies. The difference between allergy and immunity therefore depends on whether antibodies are predominant in the cells or in the blood.

Electromyographic Studies of Muscular Fatigue in Man

Drs. Stanley Cobb and Alexander Forbes, Boston: Observations were made in two ways: (1) An ergograph was devised to fatigue the flexor muscles of the wrist, and the electromyograms were made by leading off the action currents from the belly of the flexor carpi radialis, a simultaneous mechanical record being made of the flexion at the wrist. Thus, the mechanical and the electrical concomitants of muscular activity were superimposed on one record during a series of isotonic contractions terminating in fatigue. (2) Isometric contractions were similarly recorded; in these, the subject flexed the wrist forcibly and continuously against a stationary object until fatigue supervened. The records showed that in acute fatigue of this sort, the action currents of the muscles involved became slower in rate and greater in amplitude. This may be explained in terms of the Lucas-Adrian conception of neuromuscular conduction, and indicates that fatigue takes place at the neuromuscular junction.

Response of the Human Body to Therapeutic Application of External Heat

Dr. Ralph Pemberton and C. Y. Crouter, Philadelphia: A relatively small amount of data is available to explain the benefits accruing from this measure. The studies here recorded show, during exposure of the whole body to an electric light bake for from thirty to fifty minutes, a fall in alveolar carbon dioxid during the rise of the body temperature. This generally accompanies the beginning of perspiration, and is followed by a rise in alveolar carbon dioxid after the bake. Studies of the blood gases showed a rise in the percentage saturation of oxygen in fourteen of seventeen cases during the bake. Nine of the seventeen showed a rise in blood carbon dioxid after the bake. It was not possible to determine definitely a fall in the blood carbon dioxid coincident with the fall in the alveolar carbon dioxid. Study of the p_H of the sweat reveals that in nearly all instances in health or disease the sweat becomes more alkaline during the bake. Sweat from ten normal persons taken from the forehead at fifteen minute intervals showed an average change in the p_H of 7.0-7.6-7.9. The average of fifty-five tests on twenty patients with arthritis was 6.6-7.1-7.4. In other words, the patients with arthritis showed on the average a slightly more acid and occasionally a very much more acid sweat. From 10 to 15 gm. of sodium bicarbonate given to three patients with acid sweat before the bake had no effect on the sweat reaction. The urine, and usually the saliva, as well as the sweat, showed an increase in the p_H during the bake.

The Threshold of Ketogenesis

Drs. Russell M. Wilder and Malcolm W. Winter, Rochester, Minn.: The important data obtained in sixteen experiments on thirteen diabetic patients and three epileptic, but otherwise healthy patients, are reported. The metabolism of these patients was determined by the gasometer method, and the composition of the food mixture actually metabolizing was arrived at from the estimated total energy exchange, the urinary nitrogen excretion and the carbohydrate quota of the diet. The ratio between the ketogenic molecules and the glucose molecules derivable from this burning mixture was calculated by means of assumptions employed by Shaffer in similar studies. The first patient in the series had epilepsy, and had been fasting for eleven days. Although he received no food, a knowledge of the total metabolism and nitrogen excretion permitted the calculation of the metabolizing mixture. The ketogenic ratio of this mixture was 2.8:1, and, accompanying this high ratio, acetone bodies appeared in appreciable quantities in both blood and urine. In the other fifteen cases the ketogenic ratios lay between 1.2:1 and 2:1. One patient with a ratio of 1.7 had an acetone excretion of 6.2 gm. in the twenty-four hours and blood acetone of 18 mg. for each hundred cubic centimeters. Another with a ratio of 1.7 had an acetone excretion of 5.0 gm. and blood acetone of 22.9 mg. for each hundred cubic centimeters. Both of these cases were complicated by afebrile infections. Excepting them, the acetone values accompanying ratios between 1.2:1 and 2:1 were such as are commonly encountered in what are considered to be well controlled cases of diabetes and were so small as to be theoretically unimportant and clinically insignificant. These results harmonize with Shaffer's recent opinions, and apparently permit conclusions as follows: Certain assumptions are employed in the calculation of the composition of the mixture of food substances engaging in metabolism. Under the conditions of these experiments, provided these assumptions are tenable, the ratio between the ketogenic and the glucose molecules at which a clinically significant ketosis appears is at least 2:1. A ratio of this value implies that every molecule of glucose is ketolytic for two molecules of acetoacetic acid. The existence of infection lowers the ketogenic threshold so that significant ketogenesis may occur with lower ratios. Other factors, thus far undetermined, may also lower this threshold. It is advisable, therefore, in planning diets for diabetic patients to allow only such food mixtures as will avoid the 2:1 ratio by a safe margin.

Clinical Experience with Quinidin in the Johns Hopkins Hospital

Drs. E. P. Carter, F. R. Dieuaide and C. Sidney Burwell, Baltimore: In the last seven months, sixteen patients have been so treated, including both sexes, the age ranging from 22 to 77. The etiologic factors include acute rheumatic fever, arteriosclerosis and hyperthyroidism. Our observations include (1) the changes in cardiac mechanism which occurred as the result of this therapy, and (2) the effects of these changes in mechanism on the efficiency of the circulation, as shown by the subjective condition of the patients and by changes in the systolic blood pressure, the vital capacity and the limitation of the patient's activity. In general, the routine of treatment has been as follows: 1. The circulation was brought to the highest efficiency possible by rest and, in most cases, thorough digitalization. Two patients who had low apical rates with no pulse deficit, cyanosis or edema, and whose only signs of cardiac insufficiency were dyspnea and limitation of activity, were not given digitalis. In the other cases, digitalis was stopped before the administration of quinidin. 2. A small preliminary dose of quinidin was given to test for possible idiosyncrasy to the drug. No case of hypersensitivity was discovered. 3. The following day, 2 gm. was administered in five doses of 0.4 gm. at two hour intervals. This dosage was adopted in order to maintain a high concentration in the body, and was continued until the cardiac mechanism became normal, or until unfavorable signs appeared, or until it became evident that the cardiac mechanism could not be changed. In one case as much as 19 gm. of the drug was given.

Of the sixteen patients treated, the cardiac mechanism became normal in fourteen (87 per cent.). Certain of these relapsed to auricular fibrillation within a few days, and received a second course of treatment. Nine patients (56 per cent) have remained regular since leaving the hospital, the longest duration being six and one half months. Three patients have died since the treatment was administered. The day of treatment on which the change to normal rhythm occurred varied from the first to the fifth, being in eight instances the first. The amount of the drug varied from

0.4 to 10 gm. All observations on the mechanism were confirmed by frequent electrocardiograms. Two patients were observed to pass through a stage of auricular flutter in the transition from auricular fibrillation to normal mechanism.

Obviously, the fact that auricular fibrillation can be terminated by quinidin is of little significance unless it can be shown that the patient's health is improved. Eight patients have experienced distinct relief with the onset of normal rhythm, and seven of these have been able to live on a considerably higher plane of activity. The remaining patient is still in the hospital under observation. The average systolic blood pressure during fibrillation, as determined by the method of James and Hart, was found to be low, usually 100 mm. of mercury or less. The onset of normal rhythm was accompanied in most cases by a rise in systolic pressure of from 30 to 40 mm. In the presence of fibrillation, the vital capacity was found to be only 50 per cent. of the calculated normal in most of the cases. In one case, however, the vital capacity was not reduced. The mean vital capacity after the restoration of normal mechanism was 80 per cent. of the normal. The efficiency of the circulation in thirteen of these patients was further studied by the determination of the degree of oxygen saturation of the arterial and venous blood. This work was reported at the annual meeting of this society in May, 1922, by Dr. Harold J. Stewart. None of our patients have shown signs of intoxication with quidinin. There have been two deaths, the association of which with quinidin therapy it is difficult to avoid. These cases are apparently examples of embolism from an intra-auricular thrombus. One of these patients who died with symptoms of uremia was found at necropsy to have a mural thrombus and extensive infarction of both kidneys. Both patients had rheumatic heart disease and fibrillation of many years' duration. The death of the third patient is not considered to be related to the quinidin therapy.

Q-T Interval in Human Electrocardiogram in Absence of Cardiac Disease

DR. EDWARD P. CARTER and E. COWLES ANDRUS, Baltimore: Experimentally, numerous observations have been made on the effect of changes in the electrolytic content of the perfusing fluid on the various phases of the galvanometric record. With a view to correlating these observations with conditions that obtain in the human subject, we have made certain studies on clinical conditions involving demonstrable changes in the serum electrolytes.

As the nature of the problem under investigation depended entirely on the admission of suitable cases to the wards of the hospital, it has been possible to investigate only a limited number of individuals. These have included infantile tetany, six cases, and adult tetany, three cases. A series of six cases of infantile tetany was carefully studied on the basis of accurate measurements of the galvanometric records, with a view to correlating particularly the lengthened Q-T interval seen in experimental calcium lack with the clinical condition known to be associated with a deficiency of serum calcium. Galvanometric records were taken soon after admission, and the serum calcium was determined at the same time. The infants then received calcium by mouth, and subsequent determinations of the serum calcium were made. Galvanometric records were again taken and measured after a reasonable period of calcium therapy.

In calculating the normal relation of the length of ventricular systole to the cardiac cycle, we used the formula of Bazett, who has stated that, in the adult electrocardiogram, (Q-T) $R\text{-}T = K \sqrt{R\text{-}R}$, the value of K being 0.36 for the female and 0.40 for the male. Recognizing the possible inaccuracy of this formula as applied to the infant's heart, we have also reduced their figures to a percentage basis. In the cases of infantile tetany, the Q-T interval was constantly prolonged relatively to Bazett's formula. This disparity decreased as the serum calcium rose. Similarly, the Q-T interval occupied a smaller percentage of the cardiac cycle as the calcium concentration in the serum increased.

Three observations were made on adults: A. C., woman, aged 35, showing typical carpal spasm and low blood calcium following overdosage with sodium bicarbonate; G. S., man, aged 40, with pyloric obstruction and gastric tetany, and A. K., woman, aged 35, having symptoms of tetany and a low blood calcium. In each of these cases the Q-T interval was prolonged more than 30 per cent. above Bazett's formula. Further, a limited number of observations on the effect of the ingestion of potassium chlorid by normal individuals have shown certain apparently definite variations of the galvanometric record analogous to the experimental results seen with an increase in the potassium content of a perfusing fluid. Finally, we studied in a similar way a series of twenty cases of diabetes in an attempt to correlate, if possible, the lengthened Q-T interval frequently found in this condition with the percentage of sugar present in the blood. We are forced to conclude that there is no relationship between the amount of hyperglycemia and the Q-T interval.

The Effect of Sodium Salicylate on the Development of Arthritis in Rabbits Inoculated with Streptococcus Viridans

DRS. RALPH H. BOOTS and HOMER F. SWIFT, New York: The object of the series of experiments was to determine whether sodium salicylate administered to rabbits by stomach tube in doses comparable to those given patients with acute rheumatic fever would prevent arthritis, when the animals were inoculated with cultures of *Streptococcus viridans*. In view of the widespread opinion that acute rheumatic fever is due to infection with green streptococci, and with the definite clinical evidence that the arthritis in patients with acute rheumatic fever disappears under therapeutic doses of salicylates, it seemed probable that if the arthritis induced in rabbits by intravenous inoculation of green streptococci were of the same nature as is the arthritis of acute rheumatic fever, they might respond in a similar manner to that of patients. Healthy adult rabbits were divided into groups of from three to six; each group containing the same number were used in each experiment; one group received sodium salicylate by stomach tube in daily doses of from 0.2 to 0.3 gm. per kilogram of body weight. The control group received no drug. Various strains of green streptococci previously recovered from patients with acute rheumatic fever or streptococcus endocarditis were used for intravenous inoculations; some were known usually to produce arthritis in inoculated animals; others were less constant in this respect. Thus, organisms possessing various grades of virulence and arthrotropic capacity were used. All organisms were grown in broth, centrifugalized and resuspended in Ringer's solution. After inoculation the animals were inspected daily for the appearance of signs of arthritis; and, postmortem, all of the joints were examined for evidence of inflammation. Films were made of the fluid from all the joints and cultures from all turbid fluids. Fifty rabbits were inoculated in six experiments; twenty-five treated and twenty-five controls. Twenty-three animals in each group developed arthritis; it is evident, therefore, that the salicylates do not prevent arthritis in rabbits so inoculated. But an analysis of the character of the joint fluids brings out some interesting differences. If the fluid be classified according to gross and microscopic appearance three types are found: (*a*) Gross: Fluid clear. Microscopic: Polymorphonuclear and mononuclear cells moderately increased. (*b*) Gross: Fluid turbid. Microscopic: Polymorphonuclear and mononuclear cells much increased. (*c*) Gross: Fluid purulent. Microscopic: Polymorphonuclear and mononuclear markedly increased. The salicylated rabbits showed more exudates of Type *a* and relatively fewer of Types *b* and *c*. This was true not only in the average of all of the experiments, but also in the majority of the individual experiments. It seemed, therefore, that although the rabbits developed arthritis, the salicylated animals had a less severe inflammation of the joints than did the controls.

Experiences with the Low Salt Diet in Hypertension

DR. JAMES P. O'HARE, Boston: A series of eighteen cases of vascular hypertension in which the effect of an extremely low salt intake was studied showed only two cases in which this treatment might have caused a sufficient reduction in pressure to compensate for the difficulty in carrying out the treatment. It is virtually impossible to carry it out successfully except in the hospital.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Surgery, Philadelphia

May, 1922, **75**, No. 5

*Anomalous Abdominal Membranes. Their Influence on Digestive Tract. A. S. Taylor, New York.—p. 513.
Epithelioma of Genito-Urinary Organs. A. C. Broders, Rochester, Minn.—p. 574.
Case of Carcinomatous Papilloma of Renal Pelvis. L. H. Landon and N. M. Alter, Pittsburgh.—p. 605.
*Hernia of Bladder. J. N. Baker, Montgomery, Ala.—p. 615.
*Gas Cysts of Intestines. J. L. Bubis and C. E. Swanbeck, Cleveland. —p. 620.
Two Cases of Traumatic Diaphragmatic Hernia. C. B. Keenan, Montreal, Can.—p. 625.

Anomalous Abdominal Membranes. — The membranes encountered by Taylor were: (1) hepatoduodenal and hepatoduodenocolic; (2) duodenojejunal; (3) pericolic. Taylor asserts that anomalous membranes are present in from 15 to 20 per cent. of new-born infants. They result from atypical peritoneal fusion during fetal life. Many of them are probably modified by later pathologic changes due to continued traction, irritation, or low grade inflammation. They cause mechanical disturbances, fixation, angulation, compression and torsion of the digestive tract resulting in partial, continuous and often increasing obstruction. This, in turn, frequently causes dilation proximal to the obstruction. Symptoms result when the obstruction becomes greater than the peristaltic efficiency can easily overcome. The treatment is (*a*) prolonged medical and (*b*) surgical. Best incision is "transverse right rectus," as it gives best exposure of the whole field, and postoperative adhesions are in least troublesome situation. (*c*) Postoperative. Abdominal massage. Medical supervision of diet and general hygiene, etc. The results are very satisfactory, as a whole.

Hernia of Bladder. — The case of bladder herniation reported by Baker complicated an acute intestinal strangulation at the inguinal opening.

Gas Cysts of Intestine.—An ulcer at the base of the appendix is believed by Bubis and Swanbeck to have been the portal through which the gas entered the layers of the cecum and the ascending colon in their case.

Archives of Ophthalmology, New Rochelle, N. Y.

May, 1922, **51**, No. 3

Present Trend in Glaucoma Operations: Iris-Prolapse Technic. H. Herbert, Brighton, Eng.—p. 203.
Optic Nerve and Accessory Sinuses. J. Van Der Hoeve, Leiden, Holland.—p. 210.
Persistent Accommodative Spasm Due to Latent Hyperphoria. F. W. Marlow, Syracuse, N. Y.—p. 223.
Case of Metastatic Carcinoma of Choroid. J. A. MacMillan, Montreal. —p. 227.
Intermittent Ophthalmomalacia. S. O. Fields, Norfolk, Va.—p. 233.
Significance of Molluscum Contagiosum as an Etiologic Factor of Conjunctival and Corneal Disease. A. Elsching.—p. 237.
Primary Intraneural Tumors (Gliomas) of Optic Nerve. F. H. Verhoeff, Boston.—p. 239.
Sympathetic Ophthalmia: Report of Two Cases Cured. D. T. Vail, Cincinnati.—p. 255.
Use of Gullstrand Slit Lamp. H. S. Gradle, Chicago.—p. 264.

California State Journal of Medicine, San Francisco

May, 1922, **20**, No. 5

Problems of Industrial Medicine in California. G. W. Goodale, San Francisco.—p. 149.
Popularization of Medical Knowledge. H. I. Leviton, Los Angles.—p. 152.
*Treatment of Oak Dermatitis Caused by Rhus Diversiloba. H. E. Alderson, San Francisco.—p. 153.
Outbreak of Epidemic Jaundice in Nevada City, California. A. H. Tickell, Nevada City.—p. 154.

Treatment of Oak Dermatitis.—Alderson uses an alcoholic solution of the toxin of the poison oak plant (*Rhus diversiloba*). A given weight of fresh crushed leaves of rhus diversiloba is covered with absolute alcohol, extracted, filtered and precipitated, and the precipitate dried at low temperature. A given weight of the toxin is dissolved in absolute alcohol and sterile water added. An arbitrary standard is set for the weight of the toxin, volume of absolute alcohol and the volume of sterile water. Of several hundred patients injected only a few have felt faint or nauseated, and in each instance this was due principally to psychologic factors. It is not claimed that this treatment is invariably successful, but in most cases the results by this method are superior to those seen after any other plan of therapy. From 0.5 to 1.5 c.c. are given intragluteally and the dose is repeated again in twenty-four hours, and again twenty-four hours later if improvement in the subjective and objective symptoms is not very definite. Usually within forty-eight hours there is great improvement and it is seldom that a third injection is found necessary. At the same time the following solution is given by mouth until finished: oak toxin solution, 4 gm.; aromatic elixir, 90 c.c. Begin with 10 drops in water three times daily, increasing by one drop each dose until 20 drops are being taken. Then take one teaspoonful once daily. By this method tolerance for the poison may be established. It is recommended that this solution be taken once a year.

Canadian Medical Association Journal, Toronto

May, 1922, **12**, No. 5

*Carcinoma of Rectum. Two Cases. A. T. Bazin, Montreal.—p. 281.
Aortic Dilatation and Aneurysm. W. Wilson, Vancouver, B. C.—p. 283.
Pathology and Treatment of Chronic Catarrhal Deafness. P. G. Goldsmith, Toronto.—p. 293.
Notes on Newer Pathology of Syphilis. J. J. Mackenzie, Toronto.—p. 300.
Symptoms of Recovery. E. Moorhead, Winnipeg.—p. 302.
Treatment of So-Called Sciatica. J. A. Nutter, Montreal.—p. 306.
Tetanus. H. H. Hepburn.—p. 312.
Relationship Between Suprarenals and Thyroid. F. A. C. Scrimger, Montreal.—p. 316.
Differential Diagnosis of Diseases of Thyroid. J. Phillips, Cleveland. —p. 318.
Tuberculosis: Physical Signs. W. J. Dobbie, Weston.—p. 327.
Two Cases of Rheumatoid Arthritis. A. M. Forbes, Montreal.—p. 331.
Ulcerative Colitis Due to Bacillus Dysenteriae, Simulating Pernicious Anemia. H. M. Young.—p. 332.
Intermittent Hydronephrosis Due to Kinking of Right Ureter by an Accessory Renal Artery. W. W. Beatty.—p. 333.
Purpura Hemorrhagica Complicated by Gangrene of Glans Penis and Lung Abscess. H. C. Cassidy.—p. 334.
Suppurative Parotitis. G. W. Aitken.—p. 335.
Syphilitic Aortitis and Endocarditis. J. C. Lindsay.—p. 335.
Diagnosis Uncertain, Help Wanted. H. Club.—p. 336.

Carcinoma of Rectum.—Bazin cites two cases, one occurring in a man aged 34. He urges making a careful examination in all cases of abdominal pain with vomiting and obstipation, and in cases of rectal bleeding and painful defecation in order that the carcinoma, if present, may be detected early and thus increase the possibility of effecting a cure.

Illinois Medical Journal, Oak Park

May, 1922, **41**, No. 5

Aids to Diagnosis in Medicine. H. E. Tuley, Louisville, Ky.—p. 333.
Newer Methods of Cesarean Section. J. B. De Lee, Chicago.—p. 341.
*Moonshine Psychosis. B. Lemchen, Chicago.—p. 345.
Clinical Diagnosis of Spinal Cord Tumors. J. E. Royer, Chicago.—p. 347.
When Is Simple Mastoid Operation Indicated in Treatment of Acute Mastoiditis? C. F. Yerger, Chicago.—p. 350.
Graphic Explanation of Wassermann Reaction. F. Herb, Chicago.—p. 354.
Modified Technic for Control of Tonsillar Hemorrhage. H. M. Thometz, Chicago.—p. 356.
Obstetric Problems of Country Doctor. G. M. Baker, Altamont, Ill.—p. 357.
Treatment of Nonactive Clinical Tuberculosis. N. C. Iknayan, Charleston, Ill.—p. 361.
Hypothyroidism and General Practitioner. J. H. Hutton, Chicago.—p. 363.
Epigastric Hernia. R. J. E. Oden, Chicago.—p. 367.
Psychiatry and Physician. C. H. Anderson, Anna, Ill.—p. 369
*Case of Lysol Poisoning O. B. Ormsby, Murphysboro, Ill.—p. 371.
Rural Surgery Under Difficulties. J. W. Bowling, Shawneetown, Ill. —p. 372.
Types of Severe Anemia. A. Stengel, Philadelphia.—p. 374.

Poisoning by Liquor Cresolis Compositus.—Ormsby relates the case of a man, about 25, who swallowed about 2 ounces of liquor cresolis compositus. The patient was apparently delirious, raving and struggling with anyone who attempted to restrain him. The stomach was washed out a number of times with a weak solution of sodium bicarbonate and alcohol,

finally finishing up with about one-half pint of milk, which was allowed to remain in the stomach. The following day the patient was rational, and seemed fairly comfortable. The urine was black. There was a most profuse flow of mucus secretion from the chest, the patient spat up about 1 pint in each six hours. The black urine persisted for forty-eight hours. At no time was there even a suggestion of cardiac failure, and at no time was any stimulant used. The patient made an uninterrupted and rapid recovery, being discharged eight days after the dose.

Iowa State Medical Society Journal, Des Moines

May, 1922, **12**, No. 5

Do We Progress? W. A. Rohlf, Waverly.—p. 169.
Relation That Exists Between Hypertension, Myocarditis and Nephritis. H. A. Christian, Boston.—p. 171.
Luminal in Treatment of Epilepsy. M. N. Voldeng, Woodward.—p. 175.
Conservative Surgery of Female Pelvic Organs. A. G. Shellito, Independence.—p. 179.
Combined Anesthesia. C. Ryan, Des Moines.—p. 181.
Educational Phase of Public Health. J. F. Throckmorton.—p. 184.
Tumors Involving Oral Cavity, Upper Respiratory Passages and Ears and Some Observations Following Use of Radium. M. Armstrong, Iowa City.—p. 187.

Journal of Experimental Medicine, Baltimore

May, 1922, **35**, No. 5

*Cutaneous Nematode Infection in Monkeys. H. F. Swift, R. H. Boots and C. P. Miller, Jr., New York.—p. 599.
Virulence and Mutation of Bacillus of Rabbit Septicemia. P. H. De Kruif, New York.—p. 621.
Collodion Sacs for Aerobic and Anaerobic Bacterial Cultivation. F. L. Gates, New York.—p. 635.
Heat and Growth Inhibiting Action of Serum. A. Carrel and A. H. Ebeling, New York.—p. 647.
*Cicatrization of Wounds. XIII. Temperature Coefficient. A. H. Ebeling, New York.—p. 657.
Action of Antigen on Fibroblasts in Vitro. A. Fischer, New York.—p. 661.
Petrolatum Tube and Syringe Method of Micro Gas Analysis of Bacterial Cultures. J. H. Brown, Princeton, N. J.—p. 667.
Studies on Pneumococcus. I. Acid Death Point of Pneumococcus. F. T. Lord and R. N. Nye, Boston.—p. 685.
Id. II. Dissolution of Pneumococci at Varying Hydrogen Ion Concentrations. Effect of Temperature, Previous Killing of Organisms, and Fresh Human Serum on Phenomenon. Behavior of Other Organisms. F. T. Lord and R. N. Nye, Boston.—p. 689.
Id. III. Dissolution of Pneumococci in Pneumonic Cellular Material at Varying Hydrogen Ion Concentrations. Resistance of Certain Other Organisms to Dissolution. F. T. Lord and R. N. Nye, Boston.—p. 699.
Id. IV. Effect of Bile at Varying Hydrogen Ion Concentrations on Dissolution of Pneumococci. F. T. Lord and R. N. Nye, Boston.—p. 703.
Surface Tension of Serum. II. Action of Time on Surface Tension of Serum Solutions. P. Lecomte Du Nouy, New York.—p. 707.
Pathology of Dermatitis Caused by Megalopyge Opercularis, Texan Caterpillar. N. C. Foot, Boston.—p. 737.

Cutaneous Nematode Infection.—A number of monkeys (*Macacus rhesus*) were found by Swift et al. to be infected with a nematode which gave rise to several types of skin lesions, subcutaneous nodules, edema about the joints, and elongated serpiginous blisters of the palms and soles. In the subcutaneous nodules were found larval forms of the nematode and possibly adult male forms. This is believed to be the first description of a nematode that lays its eggs in the epidermis. The provisional name given the parasite is *Trichosoma cutaneum*, 1922.

Effect of Heat on Wound Healing.—For a rise of temperature of 10 C., the rate of cicatrization was increased about twofold. Ebeling asserts that this result could be expected, since wound healing is closely related to the phenomenon of growth and regeneration. It is classical that changes in temperature affect the metabolism and the development of certain organisms in the same manner as a chemical reaction. In spite of the complexity of the factors which bring about the cicatrization of a wound, it appears that the velocity of the phenomenon depends on the rate at which certain chemical changes take place.

Journal of Industrial Hygiene, Boston

May, 1922, **4**, No. 1

Physician in Industry. C. E. Ford, New York.—p. 1.
Lead Studies: 1. Estimation of Minute Amounts of Lead in Biologic Material. L. T. Fairhall.—p. 9.
Skin Diseases Commonly Seen by Industrial Physician. E. L. Oliver, Boston.—p. 21.
Experimental Observations on Relation Between Atmospheric Conditions and Production of Fatigue in Mine Laborers. A. J. Orenstein and H. J. Ireland, Johannesburg, S. Africa.—p. 30.

Journal of Infectious Diseases, Chicago

May, 1922, **30**, No. 5

Formol and Wassermann Reactions. M. Armangue and P. Gonzales, Barcelona, Spain.—p. 443.
*Differentiation and Identification of Sporulating Anaerobes. I. C. Hall, Berkeley, Calif.—p. 445.
*Presence of B. Lactimorbi in Throats of Cats. R. G. Perkins and J. K. Shen, Cleveland.—p. 505.
Preparation of Toxin-Antitoxin Mixture. P. G. Heineman and C. R. Hixson, Woodworth, Wis.—p. 508.
*Epizootic Among Guinea-Pigs Due to Paratyphoid B Bacillus. K. M. Howell and O. T. Schultz, Chicago.—p. 516.
Effect of Peptone on Toxigenic Property of B. Diphtheriae No. 8. H. L. Wilcox, New York.—p. 536.
*Action of Neo-Arsphenamin and Neosalvarsan on Phagocytic Activity of Leukocytes. R. Tunnicliff, Chicago.—p. 545.
Conductivity of Bacterial Cells. R. G. Green and W. P. Larson, Minneapolis.—p. 550.

Identification of Sporulating Anaerobes.—A critical study of the taxonomy of the obligate anaerobes based on a collection of carefully and repeatedly purified strains, secured from various sources, is presented by Hall. Emphasis is laid on certain purity as an underlying principle in the classification of the anaerobes. Various criteria for identification are discussed in the order of their proper utilization, with respect to their significance, technic and limitations as follows: Morphology, action on proteins, and action on carbohydrates. These points are utilized in setting up a differential key that may be used in the identification of the forms most commonly encountered. The last section of the article discusses the details of origin, purification, differentiation and identification of various cultures.

B. Lactimorbi Like Diphtheria Bacillus.—The occurrence of *B. lactimorbi* in the throat of cats is described by Perkins and Shen and the danger of this bacillus being mistaken for *B. diphtheriae* is emphasized.

Tubercle-Like Lesions Caused by Paratyphoid B. Bacillus.—The infectious disease which developed among guinea-pigs and which is reported on by Howell and Schultz was characterized by the occurrence of multiple tubercle-like lesions of the spleen and of the liver. The disease was of the type to which the name pseudotuberculosis has been applied. From the infected animals there was isolated a gram-negative, motile bacillus which had the cultural characteristics of the colontyphoid intermediate group. The bacillus was isolated, usually in pure culture, from the lesions and from the heart blood. Immunologically the organism was distinct from the representatives of the four fixed species of the group. It was agglutinated in low dilutions (1:160) of a serum against the Jordan strain of human paratyphoid B. The epizootic was apparently brought under control by immunization of the guinea-pig stock with a killed polyvalent suspension of the organism.

Action of Neo-Arsphenamin on Phagocytic Activity of Leukocytes.—In proper concentrations, neo-arsphenamin and neosalvarsan, Tunnicliff says, may increase the phagocytic activity of leukocytes, both in vitro and in vivo. In vivo the stimulating effect is rapid and of short duration, occurring, as a rule, within thirty minutes after intravenous injection. Further study is necessary to determine what part, if any, this stimulus of the phagocytic activity of the leukocytes plays in the curative action of neo-arsphenamin and allied products.

Missouri State Medical Association Journal, St. Louis

May, 1922, **19**, No. 5

*Acute Osteomyelitis: Regeneration of Entire Shaft of Humerus. F. G. Nifong, Columbia, Mo.—p. 203.
Atypical Forms of Exophthalmic Goiter (Form Fruste, Interstitial Goiter). A. E. Hertzler, Kansas City, Mo.—p. 207.
Clinical and Chemical Diagnosis of Gastric Ulcer. F. D. Gorham, St. Louis.—p. 209.
Roentgen Ray Diagnosis of Gastric Ulcer. O. A. Ambrose, St. Louis.—p. 212.
Factors in Prognosis of Hypertensive Renal and Vascular Disease. O. P. J. Falk, St. Louis.—p. 214.
Malaria Control. L. D. Fricks.—p. 218.

Headaches of Nasal Origin. C. A. Moore, Springfield, Mo.—p. 220.
Abruptio Placentae (Uteroplacental Apoplexy). L. Dorsett, St. Louis.—p. 223.
Factors Which Influence Results in Rectal Surgery. W. H. Stauffer, St. Louis.—p. 224.

Extensive Destruction of Humerus with Regeneration.—The case reported by Nifong shows the wonderful capacity provided by nature for the building of new bone after an acute infection. There was an extensive destruction en masse, removal of the sequestrum which was the entire shaft of the humerus. Only the articular surfaces of the ends were left with the periosteum or involucrum which was the periosteum and barely palpable plaques of bone with it. From this complete reformation of the humerus took place and Nifong says nothing could demonstrate the importance of the periosteum and its function more clearly than this case. The patient was 12 years of age. No transplant was used. The periosteum was sutured together. Twenty-three months after operation the humerus was restored and motion was not far short of normal.

Michigan State Medical Society Journal, Grand Rapids

May, 1922, **21**, No. 5

Hematuria. R. Rosen, Detroit.—p. 187.
*Phlegmonous Gastritis. C. D. Brooks and W. R. Clinton, Detroit.—p. 193.
Local Anesthesia in Herniotomy. W. T. S. Gregg, Calumet.—p. 194.
Acute Mastoiditis Occurring in Microtia. D. A. Cohoe, Detroit.—p. 196.
Future Public Health Interests and Activities. III. Objectives in Future Public Health. J. Sundwall, Ann Arbor.—p. 197.

Phlegmonous Gastritis.—In the case cited by Brooks and Clinton it is suggested that the gastric pathology was probably due to a septic embolus (following tonsillitis) producing a phlebitis in the left saphenous vein on the twelfth day. On the fifteenth day, a small pulmonary infarct formed. On the twenty-eighth day a large pulmonary embolism caused death.

Nebraska State Medical Journal, Norfolk

May, 1922, **7**, No. 5

Cooperation in Medicine; Spirit of Times. B. B. Davis, Omaha.—p. 149.
Acute Ileus: Differential Diagnosis. D. Macrae, Jr., Council Bluffs, Ia.—p. 154.
Diagnosis of Cancer of Stomach. A. D. Dunn, Omaha.—p. 159.
Radiation Treatment of Uterine Cancer. A. F. Tyler, Omaha.—p. 162.
Syphilis. A. Schalek, Omaha.—p. 165.
Ophthalmologist's Relation to Syphilis. S. R. Gifford, Omaha.—p. 167.
*Case of Botulism from Eating Commercially Canned Pork and Beans. H. E. Harvey, Fairbury, Neb.—p. 170.
*Blastomycosis. J. F. Langdon, Omaha.—p. 172.

Botulism from Eating Canned Pork and Beans.—Twenty-four hours after onset of symptoms indicative of a severe toxemia, Harvey's patient, aged 3½ years, died. The illness began with a slight chill. Later the boy vomited twice and had watery stools. The general examination was negative except for an irregular nystagmus, slight twitching of muscles and a look of extreme prostration. The next morning, pulse was 140, temperature 102 F., respiration slow and shallow; slight cyanosis present. The pupils did not react. No neck rigidity was present. Cyanosis and prostration increased, the former being very marked just before death. Three other members of the family were slightly ill. Questions revealed the fact that canned pork and beans had formed a large part of the meals during the two preceding days. The food had not been cooked, but merely warmed. Cultures from two unopened cans and two of the opened cans showed organisms with cultural and morphologic characteristics of *B. botulinus*.

Blastomycosis Lesion on Site of Trauma.—In the case reported by Langdon the lesion first appeared on the site of an injury to a finger. Four other lesions developed on the hand, wrist and elbow. Cultures showed the presence of blastomycetes. The day following the taking of the culture, the patient complained of a sharp pain in the upper right chest. The following day, however, he experienced no further trouble. A roentgenogram taken at this time showed evidence of an old, healed pulmonary tuberculosis to which Langdon directs special attention because nearly all cases of pulmonary blastomycosis present the clinical picture of tuberculosis and are usually diagnosed as such. The treatment in this case—which was effective—was large doses of potassium iodid.

New Jersey Medical Society Journal, Orange

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Agitation for Free Choice of Physician in New York and What It Leads to. E. V. Delphey, New York.—p. 123.
Potter Version: Its Indications and Contra-Indications. W. J. Harman, Trenton, N. J.—p. 128.
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Infant Welfare Work. J. H. Marcus.—p. 131.

New York Medical Journal and Medical Record

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Etiology of Feeblemindedness: Prenatal Enamel Defects. L. P. Clark and C. E. Atwood, New York.—p. 573.
Group of Cases Illustrating Diagnostic Difficulties During an Epidemic of Acute Encephalitis. I. Strauss and J. H. Globus, New York.—p. 580.
Penetrating Injuries of Eye by Steel Particles. F. Allport, Chicago.—p. 589.
Protein Sensitization as Possible Cause of Epilepsy and Cancer. J. F. Ward, Brooklyn.—p. 592.
Summary of a Year's Work (1920) in Urology. N. P. Rathbun and G. Phillips, Brooklyn.—p. 595.
Operating Room. J. F. X. Jones, Philadelphia.—p. 601.
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Experimental Rickets in Rats. V. Korenchevsky, London.—p. 612.
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Medicolegal Aspect of Morbid Impulses. A. Gordon, Philadelphia.—p. 616.
Modern Commentaries on Hippocrates. J. Wright, Pleasantville, N. Y.—p. 621.

New York State Journal of Medicine, New York

May, 1922, **22**, No. 5

Panaceas. J. F. Rooney, Albany, N. Y.—p. 201.

Ohio State Medical Journal, Columbus

May, 1922, **18**, No. 5

Prevention of Deformity. C. H. Hyman, Cleveland.—p. 333.
*Argyria. O. P. Kimball, Cleveland.—p. 336.
Value of Spinal Fluid Examination. C. E. Kiely, Cincinnati.—p. 339.
Solving Malnutrition Among School Children E W Schlemmer, Cincinnati—p. 342.
Newer Roentgen-Ray Technic for Treatment of Cancer. J. H. Schroeder, Cincinnati.—p. 345.
*Value of Tests for Renal Function in Clinical Medicine. H. O. Mosenthal, New York.—p. 348.

Argyria.—A man, aged 21, with a duodenal ulcer, was given 10 minims of 10 per cent. silver nitrate solution after each meal for about eight months. Up to this time he had taken a total quantity of 1½ ounces of silver nitrate or approximately 1 ounce of silver. His general appearance was that of a normal, healthy young man, except for a slight but definite discoloration of the sclera and the face, which was most noticeable under the eyes and over the nose, where it was almost a slate color. The mucous membrane of the mouth was pale, and of a bluish tinge, the gum margins being distinctly blue with a definite black stippled line of metallic deposit on the gum margins of several teeth. The tonsils were large and cryptic and showed a more pronounced color than the mucous membrane of the mouth and throat. Although the temperature was 100.4 F., there was no clinical evidence of any pathologic condition in the chest or abdomen. The urine was loaded with albumin and fine granular casts. The blood findings were: red blood cells, 2,900,000; white blood cells, 2,800; hemoglobin, 45 per cent. The blood picture was that of a rapidly produced secondary anemia with definite variation in the size of the red cells although no nucleated cells could be found. In two months the blood picture showed a marked improvement in every respect. The nephritis so clearly manifested at the first examination was exactly like that seen in cases due to lead, mercury, bismuth or any other metallic poisoning. The tonsils were removed and chemical tests showed that the blue-gray color was due to silver deposits. In excised specimens, or at necropsy the presence of silver could be determined by the immediate disappearance of the color on the application of strong potassium cyanid and its reappearance on exposure to hydrogen sulphid gas.

Test for Renal Function.—A method of procedure is outlined by Mosenthal by means of which an estimation of renal function and the suitability of the patient's diet and habits to his needs may be carried out in the ambulant subject. The direct evidence of what diabetic habits are not suited to the case is developed and the required corrections may be made with a minimum of discomfort to the patient and with the most effective results.

Pennsylvania Medical Journal, Harrisburg

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Primary Carcinoma of Lung. F. J. Dever and C. E. Royce, Bethlehem.—p. 545.
Vitreous Loss: Its Effect on End Result of Cataract Extraction: Its Prevention. L. W. Fox, Philadelphia.—p. 550.
Basal Metabolic Rate in Constitution Inferior Children. H. O. Pollock and E. B. McCready, Pittsburgh.—p. 556.
Child's Right to Health. E. A. Glenn, Berwick.—p. 557.
Harelip and Cleft Palate. S. L. McCurdy, Pittsburgh.—p. 560.
Dangers of Electric Motors Within Metabolism Apparatus. F. B. Sanborn.—p. 564.

Philippine Journal of Science, Manila

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Geologic Reconnaissance of Pidatan Oil Field, Cotabato Province, Mindanao. W. D. Smith, Manila.—p. 23.
Recent Improvements in Nipa-Sugar Manufacture. A. H. Wells and G. A. Perkins, Manila.—p. 45.
Drainage Control by Jointing in Angat District, Bulacan Province, Philippine Islands. H. G. Schenck, Manila.—p. 57.
Philippine Serphidae (Proctotrupidae). J. J. Kieffer, Lorraine, France.—p. 65.
Identification of Ambergris. H. I. Cole, Manila.—p. 105.
New Malayan Cixiidae (Homoptera). F. Muir.—p. 111.

Rhode Island Medical Journal, Providence

May, 1922, **5**, No. 5

Medicinal Plants. H. P. Lovewell, Providence.—p. 237.
Clinical Interpretation of Wassermann Reaction. H. C. Solomon.—p. 242.

Southern Medical Journal, Birmingham, Ala.

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Difficulties and Errors Before and After Antimalaria Campaigns. C. C. Bass, New Orleans.—p. 339.
Malarial Relapses. H. H. Howard, New York.—p. 343.
Necessity for and Methods of Securing Accurate Malaria Statistics in Demonstration Areas. O. Dowling, New Orleans.—p. 347.
Problems Encountered in Maintaining Urban Malaria Control. C. W. Garrison, Little Rock, Ark.—p. 352.
Direct and Indirect Advantages of Urban Malaria Control to State Health Program. S. W. Welch, Montgomery, Ala.—p. 359.
Rural Malaria Control with County as Unit. E. G. Williams, Richmond, Va.—p. 362.
Importance of and Factors to Be Considered in Selecting New Towns for Malaria Control Demonstrations. J. A. Hayne, Columbia, S. C.—p. 368.
Fish as an Antimosquito Agency. J. A. LePrince, Memphis, Tenn.—p. 371.
Efficient and Economical Use of Oil in Prevention of Malaria. E. B. Johnson, Montgomery, Ala.—p. 374.
*Tolerance of Children for Digitalis. H. McCulloch and W. A. Rupe, St. Louis.—p. 381.
Encephalomeningocele Through Foramen Cecum. W. L. Funkhouser, Atlanta, Ga.—p. 385.
*Rural Administration of Antisyphilitic Treatments. H. R. Hays, Jackson, Miss.—p. 387.
*Unique Case of Chronic Morphinism. S. T. Lipsitz, St. Louis.—p. 389.
Review of 300 Cases of Breast Disease. I. Abell and S. Graves, Louisville, Ky.—p. 390.
Value of Blood Chemistry to Surgeon. W. H. Bailey, Oklahoma City, Okla.—p. 394.
Congenital Hydronephrosis. A. I. Folsom, Dallas, Tex.—p. 399.
Correlation of Roentgen-Ray Interpretations, with Clinical Findings and End Results in Railway Surgery. E. T. Newell, Chattanooga, Tenn.—p. 402.
Malaria and Eye, Nose and Throat Infections. H. B. Searcy, Tuscaloosa, Okla.—p. 406.
*New Treatment for Hay-Fever During Attack. C. M. Miller, Richmond, Va.—p. 408.
Group Medicine. W. P. Harbin, Rome, Ga.—p. 410.
Association vs. Isolation for Young Man in Private Practice. S. R. Roberts, Atlanta, Ga.—p. 411.
Organized or Closed Staff: Advantages and Possibilities. J. B. Franklin, Dallas, Tex.—p. 415.

Tolerance of Children for Digitalis.—McCulloch and Rupe have been administering digitalis to children with heart disease in an effort to determine, first, how much of a standardized preparation of digitalis is necessary to produce a physiologic effect on the heart; second, how closely the clinical improvement in the patient coincides with the appearance of physiologic effects on the heart; third, in what way do children differ from adults in their responses to digitalis. It was found entirely practical to use large doses of digitalis and this method of administration possesses for children all the advantages that it does for adults when compared with the alternative method of using smaller doses given for a long period of time. The total amount of the drug necessary to produce an effect on the heart can be estimated according to the method of Eggleston. It is necessary to know the body weight of the child and the strength of the preparation of digitalis, whether it be dried leaves, tincture or infusion. The authors give 50 per cent. of the estimated dose at midnight, 25 per cent. at 4 a. m., and if no effects have appeared at 8 a. m., give the remaining 25 per cent. This permits more convenient periods during the day to have the child under observation. Vomiting or electrocardiographic changes always occur during the day period of twelve hours. In such cases when it was necessary to give more than the estimated dose—and this was frequently the case—it has been given 12 noon and at 4 p. m. There are two indications for the use of digitalis in children. First, those who are suffering from heart disease and who are in a state of chronic cardiac failure. Second, those who have a regular rapid heart rate when that heart rate cannot be slowed by other measures. Massive doses of digitalis are contraindicated in two groups of children with heart disease: First, those who have an acute infectious or toxic myocarditis; second, those who are suffering from acute cardiac failure with hearts that are overloaded.

Rural Administration of Neo-Arsphenamin and Mercury.—A few ampules containing 15 c.c. of sterile, distilled water, together with two Luer syringes, one 10 c.c. and one 2 c.c., with needles 20 x ¾ and 20 x 1¾, a 4-ounce bottle of denatured alcohol, 1 ounce of cotton, the neo-arsphenamin and the mercury in oil for hypodermic use, together with a sterno heating unit, Hays says, can be carried in a physician's small satchel. With this equipment neo-arsphenamin can be given a patient just as safely and scientifically as in a hospital.

Unique Case of Chronic Morphinism in Child.—A woman, aged 49, had been a morphin addict for twenty years. The average daily quantity she had taken had been from 4 to 8 grains. Her general condition had been fairly good. Fourteen years previously, when she was pregnant, she was taking morphin daily. When the child was born the mother was told that in order that the infant might live it would be necessary to give her small doses of morphin. This practice was continued daily from the time of birth and the girl had had morphin in ascending doses until the time of admission when she was 14 years of age. She had not missed a day since she was born and was then getting from 4 to 6 grains each day by mouth. It was first given her in "small amounts" measured on a knife blade and mixed with milk. The child was breast-fed for about one month. The girl was tall, thin and pale. She showed no definite signs of physical or mental degeneracy or of organic disease. Her intelligence was deficient mainly because of insufficient schooling. On account of constant illness associated with her morphinsim she was out of school all but one year. The girl complained of severe pain radiating upward to the abdomen and of general weakness. This was most severe when the effects of the morphin would wear off. The bowels were usually constipated. The menstrual flow had not appeared. The girl was somewhat anemic. The chest was flat. She was slow in developing her secondary sexual characteristics. The abdomen was somewhat sunken. The systolic blood pressure was only ninety-five. At the hospital the morphin was gradually reduced and finally discontinued. Substitutes were employed and forced feeding was instituted. The girl left the hospital in an improved condition, apparently cured of the habit.

Nasal Secretion Filtrate Injected Intramuscularly for Hay-Fever.—Some patients seek relief only when an attack is on them and with these the use of pollen extracts is of no bene-

fit. It is with this class of patients that the treatment described by Miller is used and in his hands it has proved most beneficial. Dry cotton swabs are placed in each side of the nose, well up in the region of the middle turbinate and allowed to remain from three to ten minutes or until thoroughly saturated with the secretion present. The swabs are then removed and placed with about 20 c.c. of sterile water in a small Mandel filter. The filter is placed over a small glass beaker and the entire apparatus set aside for filtration. The filtration takes from two to six hours, so the patient is directed to return the following day for injection. A fresh filtrate is made for each injection and the injections are given intramuscularly. For the first injection, the solution that comes through the filter is diluted, one part of filtrate to seven of sterile water and 0.05 c.c. of this dilution is given. For the next injection given, dilution is made from one to six, and 0.75 c.c. is given, and for each succeeding dose, the dilution is decreased by one and the size of the injection increases by 0.25 c.c. Thus when the seventh dose is given, the dilution is only one and the injection 2 c.c. After this, if more is to be given the straight filtrate can be used, but the dosage should be cut back to, say, 0.5 or 0.75 c.c., particularly if there has been much local or systemic reaction to the diluted dosage. Following this, the straight filtrate dosage can be increased according to reaction. The best results have been gotten in patients in whom a reaction occurred after the use of the injection.

Surgery, Gynecology and Obstetrics, Chicago

May, 1922, **34**, No. 5

*Large Epidermal Cholesteatoma of Parietotemporal Region Deforming Left Hemisphere Without Cerebral Symptoms. H. Cushing, Boston. —p. 557.
*Present Status of Operative Obstetrics Referring to Abuse of Cesarean Section. J. O. Polak and A. C. Beck, Brooklyn.—p. 566.
*Traumatology of Carpus. A. H. Bizarro, London.—p. 574.
Modern Treatment (Radiotherapy) of Cancer of Lip. H. K. Pancoast, Philadelphia.—p. 589.
*Radium Treatment of Myoma of Uterus and Myopathic Bleeding. C. J. Miller, New Orleans.—p. 593.
Cranial Nerve Palsies Produced by Tumors in Region of Jugular Foramen. W. O. Ott, Rochester, Minn.—p. 597.
Congenital Megacolon in Adult. W. F. Fowler, S. C. Davison and R. R. Mellon, Rochester, N. Y.—p. 601.
Pathologic Fractures. E. A. Codman, Boston.—p. 611.
*Unusually High Degree of Leukocytosis Following Splenectomy for Banti's Disease. J. E. Thompson and V. H. Keiller, Galveston, Tex. —p. 614.
Penetrating Abdominal Wounds. N. Winslow, Baltimore.—p. 617.
Remaining Breast After Radical Removal of Opposite Side for Carcinoma. H. H. Trout, Roanoke, Va.—p. 630.
*Hyperemesis Gravidarum. C. E. Paddock, Chicago.—p. 633.
Childbirth. C. H. Davis, Milwaukee.—p. 636.
*"Bipp" Method of Treatment. R. Morison.—p. 642.
Moure Operation for Removal of Large Growths and Foreign Bodies from Antrum. V. Dabney, Washington.—p. 667.
*Practical Method of Fixation in Fractures of Mandible. R. H. Ivy, Philadelphia.—p. 670.
*Postoperative Peritoneal Adhesions. C. S. Williamson and F. C. Mann, Rochester, Minn.—p. 674.
Nephrotomy and Decapsulation for Anuria, in Case of Single Kidney; Recovery. S. S. Leopold and M. Behrend, Philadelphia.—p. 677.
Improved Needle Forceps. E. A. Printy, Chicago.—p. 679.

Cholesteatoma of Parietotemporal Region.—Cholesteatomas, or pearly tumors proper, Cushing says, arise from epithelial implantations which occur in the development of the embryo. They are seen in their most typical form in the leptomeninges, more commonly between the cerebellum overlying the fourth ventricle, and in the infundibular region. They also occur in the cerebellopontile recess, and in the Sylvian cleft. These epithelial implantations may be either epidermoid or dermoid. Hair containing tumors when arising in the leptomeninges may have all the external characteristics of the typical pearly tumor of Cruveilhier. The epidermal cholesteatomas, relatively common in the petrous and mastoid portions of the temporal bone, are in all probability of the same nature, for precisely similar tumors may be found elsewhere in the skull, over frontal, parietal and occipital regions distant from the temporal bone. As the inner table of the skull becomes absorbed, these tumors, though remaining extradural, may attain a large size and come to deform the brain greatly. They are capable of recognition by the roentgen ray owing to the associated bone defect, and are capable also of complete surgical removal if approached by a flank rather than direct attack in order that the epidermal membrane may be peeled from the dura. This desideratum is hardly possible if the central mass is primarily opened through the defect, thereby permitting the delicate lining membrane of the sac to collapse.

Present Status of Operative Obstetrics.—The present status of operative obstetrics is reviewed by Polak and Beck and the endeavor is made to show that there is a difference between surgical obstetrics and obstetric surgery done for justifiable indications; second, that routine operative intervention, even in the hands of the expert, is not free from danger to both mother and child; and finally that while cesarean section is the easiest and quickest method of delivery, there is a higher morbidity and a higher mortality following abdominal hysterotomy, than follows abdominal section generally in properly selected cases. Two groups of about 1,000 cases each are analyzed and the conclusions are drawn that surgical intervention is being too freely employed to terminate labor, and furthermore that the results for mother and child from such interference (oftentimes unindicated) with the physiologic processes of labor do not justify their employment. The adoption of the principle and practice of aseptic intelligent expectancy in labor, when the factors of labor are known to be normal or to approximate the normal, is still the safest method of delivery not only for the mother but for the fetus. There is a high morbidity even in the clean cesarean section, very much higher in fact than is common in operations for pelvic tumors, such as fibromyoma and ovarian cysts. This is due to the presence of infective bacteria in the cavity of the puerperal uterus, which migrate from the vagina to the interior of the uterus, through the open cervix. Even in expert hands there is a definite maternal risk from cesarean section, greater than is generally known. The mortality ranges from 2.9 to 14 per cent. depending on the time in labor at which operation is done, after rupture of the membranes and on the amount of vaginal invasion present.

Trauma of Carpus.—Bizarro asserts that very often the so-called "sprains," synovitis, arthritis of several kinds, rheumatism, of the wrist, are diagnosed a long time after a possible and almost forgotten trauma. One hundred and twenty-three cases of carpal injuries, sixty-eight being cases of fracture of the scaphoid and the remainder associated carpal lesions, are analyzed.

Radium Therapy of Myoma of Uterus.—A review of 183 cases extending over a period of seven years leads Miller to conclude that a large percentage of the cases of myoma of the uterus formerly subjected to operation can be permanently and safely relieved by radium, and that practically all cases of uncomplicated essential hemorrhage can be cured by radium.

High Leukocytosis in Banti's Disease.—Just before operation the blood cells in the case cited by Thompson and Keiller numbered 3,360,000 erythrocytes and 7,600 leukocytes. About two and one-half weeks after operation the count showed 3,288,000 erythrocytes and 35,400 leukocytes. Two months after operation the blood count was: 2,880,000 erythrocytes and 31,900 leukocytes.

Duodenal Feeding in Hyperemesis Gravidarum.—Three cases are reported by Paddock, the first so far as he knows, to be treated successfully by duodenal feeding. He says that these cases ordinarily would have been terminated by abortion. The women were sick. The bedside picture showed them to be desperately so, emaciated, listless, begging to be relieved of their distress, and the clinical findings showed beginning destructive organic changes. These patients are alive, two of them have had their babies, and the other one is about at term.

Bipp Treatment of Infected Wounds.—Thirty cases are reported by Morison in support of his contention that the "bipp" method of treatment of infected wounds has established the fact that, by the use of suitable antiseptics, such wounds can be closed with impunity and that healing "by first intention" may follow. Abscesses may be opened and, after treatment with antiseptics, closed again.

Fixation in Jaw Fractures.—A method of wiring the upper and lower teeth is described by Ivy which has proven efficient for reduction and retention of over 90 per cent. of fractures of the mandible met with in civil practice. For the occasional case, complicated by marked comminution or loss of bone substance, with destruction of teeth, in which fixation for several months may be required, the cast metal upper and lower splints, connected by removable lock-pins, are advised.

Prevention of Postoperative Peritoneal Adhesions.—Gelatin and gum acacia solution in the ratio of 25 per cent. of each to 50 per cent. of water has been used by Williamson and Mann to prevent the formation of peritoneal adhesions. It has extraordinary adhesive qualities; so much so that at body temperature it will stick to practically everything, including the peritoneal surface. At room temperature it forms a tough membrane not unlike rubber. It is easily sterilized by boiling but does not remain the same after sterilization in the autoclave. At body temperature, it is a semisolid. The gelatin-acacia mixture, placed in the peritoneal cavity, sticks to the site of application, causes absolutely no reaction, dissolves slowly within from 4 to 8 hours, and is absorbed from the general body cavity.

Texas State Journal of Medicine, Fort Worth

May, 1922, **18**, No. 1

Treatment of Cataract. H. Smith, Amritsar, Punjab, India.—p. 11.
Status of Intracapsular Cataract Operations in North America, with Analysis of Procedure and Results. J. O. McReynolds, Dallas.—p. 16.
Precautions Necessary to Avoid Accidents in Intracapsular Extraction. W. A. Fisher, Chicago.—p. 19.
Postoperative Complications in Eye Surgery. L. H. Lanier, Texarkana.—p. 21.
Early Recognition of Glaucoma Simplex. H. C. Haden, Houston.—p. 24.
Intraocular Tension as I Have Seen It. T. F. Roberts, Paris, Texas.—p. 27.
Treatment of Corneal Ulcers. J. H. Burleson, San Antonio.—p. 29.
Ocular Muscles: Plea for More Thorough Study. E. L. Goar and W. Ralston, Houston.—p. 31.
Sphenopalatine Ganglion Neuralgia. H. T. Aynesworth, Waco.—p. 33.
Chronic Maxillary Sinusitis as Source of Focal Infection. T. E. Fuller, Texarkana.—p. 36.
Interesting Phases of Nasal Question. E. H. Cary, Dallas.—p. 38.
Cardiac Disease Complicating Pregnancy and Labor. C. R. Hannah, Dallas.—p. 41.
*Treatment of Menorrhagia with Black Willow Buds. I. L. Van Zandt, Fort Worth.—p. 42.
Two Cases of Glioma of Brain. V. H. Keiller, Galveston.—p. 45.

Black Willow Buds Check Menorrhagia.—Van Zandt has used fluid extract of black willow buds successfully in the treatment of painful priapism, as an anaphrodisiac, to check the bleeding associated with uterine fibroid, in menorrhagia, and in severe epistaxis. He usually orders 30 minims, three times daily. He reports very good results in a number of cases.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 6, 1922, **1**, No. 3201

Treatment of Paralysis in Children. R. Jones.—p. 705.
Influence of Industrial Employment on General Health. Greenwood.—p. 708.
*Value of Vaccines in Treatment of Whooping Cough. D. Paterson and J. M. Smellie.—p. 713.
*Arteriovenous Aneurysm Treated by Ligation of Left Subclavian Artery. C. Noon.—p. 714.
*Use of Van Den Bergh Test in Differentiation of Obstructive from Other Types of Jaundice. J. W. McNee.—p. 716.
*Ethereal Extract of Strawberries for Treatment of Sprue. A. Castellani and K. C. Browning.—p. 718.
*Hydronephrosis Due to Aberrant Renal Artery. E. C. Bevers.—p. 718.
Congenital Absence of Deltoid Muscle. E. J. Tyrrell.—p. 719.
Case of Head Injury. L. G. Jacob.—p. 719.
Pain in Thigh: Cerebral and Pulmonary Hemorrhage: Death. C. J. H. Aitken.—p. 719.
*Simple Test for Sugar. J. Livingston.—p. 719.

Value of Vaccines in Whooping Cough.—The clinical histories of 1,000 cases of whooping cough are analyzed by Paterson and Smellie, especially with reference to the results of vaccine treatment. Sixty-four patients were treated with vaccine. The dosage employed was as follows: initial injection: Bordet's bacillus, 500 million; influenza bacillus (Pfeiffer), 125 million; pneumococci, 25 million. Second injection: Bordet's bacillus, 1,000 million; influenza bacillus, 250 million; pneumococci, 50 million. Third and subsequent injections: Bordet's bacillus, 2,000 million; influenza bacillus, 500 million; pneumococci, 100 million. In fifty-eight cases treated with weekly injections the average duration was seven weeks. Those treated within the first week of the onset showed an average duration of 5.7 weeks. In six cases treated with biweekly injections the average duration was 6.6 weeks. The average duration of the disease in forty-two control cases that were not treated with vaccine was 6.4 weeks. In the vaccine treated cases the average duration of the whoop was 4.8 weeks; in the nonvaccinated cases 4.4 weeks. Even in the vaccinated cases treated in the first or second week, and occasionally before the whoop developed, the shortening of the duration of the disease would appear to be negligible. The authors are of the opinion that the following points in treatment aid in the shortening of the disease and the prevention of complications: Fresh air seemed all important. Those children allowed to run about outside with the usual precautions against exposure did much better than those confined to the house. Even those with a moderate degree of bronchitis benefited greatly with this treatment. To prevent wasting the sequel of anorexia and vomiting the feeds were given in small amounts and at frequent intervals, and when possible immediately following on a paroxysm of coughing and vomiting. Cod liver oil and malt were most useful remedies. Children on this treatment seemed to put on weight, and during the stage of recovery from the disease a preparation of iron was added to the cod liver oil, with great benefit. In cases with bronchitis the following mixture was given with great benefit to a child aged 1 year, and in suitable doses to older children, every four hours: tincture of belladonna, 3 minims; potassium bromid, 3 grains; glycerin, 10 minims; water, add to 1 ounce.

Aneurysm of Subclavian Ligated.—Noon's case was one of arteriovenous aneurysm between the second part of the left subclavian artery and the left subclavian vein. The condition which demanded relief was the extreme swelling of the left upper extremity, which from the size and pain which it caused completely crippled the patient. A severe varicose ulceration of the forearm, associated with the varicose condition of the veins of the arm and forearm, made the possibility of septic thrombosis a very real danger. When the first part of the subclavian artery had been exposed it was found that pressure on the artery at once stopped completely the pulsation in the aneurysm. From the condition of the parts it seemed very inadvisable to attempt a dissection to separate the artery from the vein, and to attempt to expose the abnormal communication between them. It was therefore decided to be content with ligation of the first part of the left subclavian artery. The completion of the operation was followed by recovery.

Van den Bergh Test in Differentiating Types of Jaundice.—The clinical application of Van den Bergh's test in the differentiation of various types of jaundice is dealt with by McNee. The value of this test in the differentiation of obstructive from what may be termed functional and hemolytic jaundice is illustrated by reports of cases. Van den Bergh applied the so-called "diazo reaction," first described by Ehrlich to detect the presence of bilirubin in blood serum. Normal serum contains bilirubin in a dilution of from 1:400,000 to 1:250,000. Such a dilution in human serum is readily detected by the diazo test. No other substance likely to be present will give the reaction. To 1 c.c. of blood serum, in a small test tube, 0.25 c.c. of freshly prepared diazo reagent is added. The color reaction obtained in from ten to thirty seconds is a bluish violet, of intensity depending on the amount of bilirubin present. A delayed reaction begins only after from one to fifteen minutes, or even longer, and consists in the development of a reddish coloration, which gradually deepens and becomes more violet. (It will be seen later that this reaction is not made use of further, being replaced by the so-called indirect reaction or test—vide infra.) If the reaction is immediate or direct an obstructive jaundice is indicated. Where no direct reaction has been given, but

a perfect indirect reaction after alcohol precipitation, then the jaundice can be inferred to be either hemolytic in origin or dependent on some functional derangement of the liver cells without obstruction.

Extract of Strawberries in Sprue Treatment.—The favorable influence of a strawberry diet on sprue has been known for some time. As it is difficult and expensive to get strawberries except in the short season, and, moreover, strawberries forcibly grown out of season do not seem to have the same beneficial effect, Castellani and Browning sought a method by which the active principle or principles could be extracted and stored. Fresh strawberries are crushed with about 5 per cent. of their weight of absolute alcohol and filtered in a powerful filter press. The juice is then extracted for days in a continuous ether extraction apparatus. The ethereal extract is immediately concentrated in a vacuum over phosphorus pentoxid, a small quantity of either starch or lactose being added. The residue is dried as completely as possible in a vacuum over phosphorus pentoxid, as this appears to ensure greater stability. The extract (mixed with a little starch) is of a dark red color, has a granular scaly appearance, is somewhat soft, and thus a very powerful fragrant smell of fresh strawberries. A minute quantity of it has been kept in an amber tube for ten months, and apparently has not lost any of its characteristics, being of the same color, and its fragrant smell being just as strong. In two cases of typical sprue in conjunction with the usual milk diet and alkaline treatment, it was given in 5 grain doses, three or four times a day, and seemed to have a beneficial effect, apparently hastening the improvement in the general condition.

Abnormal Renal Artery Causes Hydronephrosis.—Some doubt has recently been expressed as to how far abnormal renal vessels are responsible for the hydronephrosis with which they are associated. In the case reported by Bevers the hydronephrosis appeared to be directly due to the aberrant vessel, which was passing directly outward and behind the ureter to the extreme lower pole of the kidney, and the symptoms disappeared after division of this vessel.

Heat Test for Sugar in Urine.—Livingston states that a drop of urine containing sugar evaporated on a microscope slide over the flame of a spirit lamp leaves a "tacky" glistening film of syrup. Further heating turns this film a rich golden color. Full heating converts the deposit into burnt sugar or caramel. Urine containing 14 grains to the ounce, according to fermentation test, gave the reaction after dilution with five times its volume of water.

Lancet, London

April 29, 1922, **1**, No. 5148

*Review of Work Done by Glasgow School on Etiology of Rickets. L. Findlay.—p. 825.
Interpretation of Symptoms in Disease of Central Nervous System. A. Feiling.—p. 831.
*Sleep of Elementary School Children. M. Gross.—p. 836.
*Modification of Cow's Milk in Infant Feeding. E. Pritchard.—p. 838.
*Treatment of Malignant Disease by a Diet Free from fat Soluble Vitamin. A. S. Wyard.—p. 840.
*Unusual Causes of Difficulty of Micturition. W. K. Irwin.—p. 841.
*Use of Phenol Red as an Indicator. H. C. Brown.—p. 842.
*Influenza, Pregnancy and Emphysema. J. D. T. Reckitt.—p. 843.
Case of Post-Diphtheritic Facial Paralysis of Late Onset. E. Thorp.—p. 843.
Wandering Silk Suture Removed from Urethra as Sequel to Cesarean Section. G. Luker.—p. 843.

Etiology of Rickets.—All that experiments and clinical studies have shown, Findlay says, is that in some way confinement and defective hygiene are the most potent causes in the production of rickets, and that the disease is intimately associated with housing conditions. Diet plays a subsidiary part, if any part at all. Findlay emphasizes very strongly that he deprecates the view that rickets may have many causes. The multiplicity of its symptomatology does not by any means support a varied cause. The bone changes, though the most definite, are not the sole manifestations of the disease; the whole economy may suffer in unison. Findlay admits that in assuming defective hygiene to be the cause it is difficult to visualize the modus operandi of the exciting factor. It is quite different from the case of the toxin of a bacterium. Confinement and lack of exercise seemed more definite and more limited factors and might exert their harmful influence by inducing deficient oxygenation. It was the idea that confinement and defective exercise caused the disease that suggested the line of treatment, viz., massage and electricity, which has given Findlay the best clinical results. Is the disease as experimentally induced in animals the same as that which occurs spontaneously in the child? is the question asked by Findlay in concluding this review. Because such and such happens in a growing dog or rat it does not necessarily mean that the same will happen in a growing child. Whatever the condition may be which experimentalists are bringing about by administration of a fat poor and a calcium poor diet, that condition is not identical with human rickets.

Sleep of School Children.—Gross has endeavored to determine, first, the amount of sleep obtained by elementary school children; and, secondly, any relation existing between the amount of sleep and their condition of health. A separate record was made for winter and summer. By summer is meant the period of the year during which the Summer Time Act is in force; the rest of the year is called winter. This study seems to show that only a very small percentage of elementary school children get enough sleep. The percentage of children showing fatigue signs, and also the percentage to be waked in the morning, increases with the age of the children. The question of the effect of the Summer Time Act on children's health appears to involve the tendency to decrease the already insufficient amount they obtain. The ideal procedure in Gross' opinion is to improve parental control and knowledge and continue with summer time. Until this improved control and knowledge is obtained summer time is detrimental to the vast majority of children. Parents should be encouraged to obtain longer sleep for their children the whole year round.

Modification of Cow's Milk for Infant Feeding.—In an attempt to discover a practical means of supplementing cow's milk dilutions with a satisfactory hotchpotch of such accessory factors as may be supposed to be attenuated below the safety line in the preparation of cow's milk modifications, Pritchard has finally come to the conclusion that the addition of a few ounces of broth, made from bones and mixed vegetables, can supply the deficiencies, although this devise lacks accuracy and precision. Such a broth, besides containing gelatin, which is a good acid fixer, animal extractives from the attached meat and bone marrow, also contains a considerable number of vegetable extractives, possibly vitamins, lecithin bodies, organic salts and cholesterol. The formula for broth is: Take 1 pound of bones and chop them up well; add one tablespoonful of vinegar and 1½ pints water; simmer for about eight hours, and then add a handful of mixed vegetables such as cabbage, brussel sprouts, spinach, roots, lentils, etc., with a few sprigs of Irish moss and allow to simmer for one hour longer. Then strain and allow to set into a jelly. The Irish moss is added to provide a source of iodin. The vinegar dissolves out the calcium salts and supplies them to the infant in a highly available condition. The following formula may be employed for modifying cow's milk to breast standard. Milk (of average quality), 10 ounces; cream (33 per cent.), 1 ounce; sugar (milk sugar at first, but later milk sugar, maltose and cane sugar mixed), 1 ounce; broth, 4 ounces; water to make, 1 pint.

Fat Soluble Vitamin Free Diet in Cancer.—Wyard reports on an investigation made into the effect of a diet free from the fat soluble vitamin A on patients suffering from cancerous growths. The fact that such a diet causes grave nutritional defect, and ultimately death, in young rats fed with it, while older animals are affected to a very much less degree or not at all, suggested the possibility that malignant cells in the human body might suffer a similar fate and that a malignant mass, though it would certainly not be destroyed, might yet be so hindered in its growth as materially to prolong life, and the cachexis produced by it diminished or prevented. In no case was any effect found on the growth and evolution of the tumor, which invariably progressed along the usual lines. In no case was any unfavorable change in the general condition of the patient attributable to the diet; and, in many, improvement was definite, at least at first. It is doubtful whether or not the amount of pain suffered by the patient is diminished by the diet. Changes in the blood

reported on rats and mice are not due to lack of this vitamin, but to one or both of the others. No bony changes (other than some secondary deposits) were discovered in any of these patients. No ill effects of any kind were observed, and Wyard says it can confidently be stated that although the use of a diet free from the fat soluble vitamin A exerts no apparent specific effect on an adult woman, its use is absolutely safe and fraught with no danger whatever to the patient.

Difficult Micturition Due to Narrowing of Urethra at Vesical Neck.—Three unusual causes of difficulty of micturition due to narrowing of the canal at the vesical neck, which give rise to many of the symptoms of enlarged prostate without any enlargement are reported by Irwin. They were: Small fibrous prostate; congenital valves of the prostatic urethra and spasm of the internal sphincter.

Use of Phenol Red as Indicator.—Brown adds one part of condensed milk to four parts of tap water. To 5 c.c. of this a few drops of phenol red solution are added, and tenth-normal sodium hydroxid solution is added to the diluted milk in bulk and sufficient saturated aqueous solution of phenol red to make the milk a vivid brick-red; provided that care is taken to stop the addition of alkali when the brick-red color is reached corresponding to a p_H of approximately 7.5 the subsequent production of acid or alkali by an organism in this medium will be demonstrated clearly. The medium is then tubed and steamed for 20 minutes on three successive days. Such a medium is said to show changes in reaction in a much more vivid manner than does litmus milk, and the production of an initial acidity, which is followed by alkalinity, as in the case of *B. paratyphosus* B, is well demonstrated.

Emphysema in Influenza.—The emphysema in Reckitt's case involved the eyelids, face, forehead, chest, arms, back of hands, abdomen and back, the peculiar crackling being marked and evident on touch.

May 6, 1922, **1**, No. 5149

Recent Advances in Orthopedic Surgery. E. Evans.—p. 879.
Interpretation of Symptoms in Disease of Central Nervous System. A. Feiling.—p. 881.
*Cardiac Pain. J. Hay.—p. 885.
Some Cutaneous Effects of Dental Sepsis. H. C. Semon.—p. 889.
Velocity of Transmission of Pulse Wave and Elasticity of Arteries. J. C. Bramwell and A. V. Hill.—p. 891.

Cardiac Pain.—Keeping clearly in mind that cardiac pain is an evidence of cardiac exhaustion, whatever the pathologic lesion, will help one in arriving at a correct valuation of the expectation of life, Hay states. Other indications of myocardial fatigue should be sought for; such an indication is breathlessness. The heart fails to supply the central nervous system with an adequate supply of blood, and the result is dyspnea. Sometimes the dyspnea is dominant, sometimes pain—sometimes both are in evidence. Cardiac pain, Hay says, is comparable to other referred pains, and is evidence of stress and an inability on the part of the heart to meet the demands made on it. Of a similar nature is the sense of constriction, which is occasionally the sole manifestation of distress. One other symptom of cardiac distress occasionally exists as the only evidence, or, at any rate, as the dominant symptom, indicating cardiac exhaustion, and that is a feeling of complete lassitude—more particularly noticed in the legs, which feel as if made of lead. It becomes a great effort to walk and move about. This feeling may be the first indication of an attack of auricular fibrillation. If pain is more and more easily induced in spite of rest and care, and if the attacks become more frequent and severe, it is clear that the myocardium is steadily growing less efficient and that death may occur at any time. In the toxic, neurotic, and hysterical cases a favorable prognosis may be given with confidence.

Dental Sepsis Causes Skin Lesions.—Five cases of cutaneous reactions to dental sepsis are reported by Semon. Treatment of the cause gave immediate relief. In every case there was an immense preponderance of *Streptococcus viridans* or *S. Haemolyticus*. The cases were pruritus, erythema multiforme, chronic urticaria with subcutaneous nodules, chronic urticaria and furunculosis.

Archives de Médecine des Enfants, Paris

March, 1922, **25**, No. 3

*Saccharosuria in Cholera Infantum. P. Woringer.—p. 129.
*Tuberculosis of the Heart. B. Korybut-Daszkiewicz.—p. 150.
Mongolian Idiocy; Two Cases. M. de Vaugirard.—p. 158.
*Latent Pott's Disease. H. Barbier and Arbeit.—p. 163.
Osteochondritis Simulating Coxalgia. J. Comby.—p. 166.

Saccharosuria in Cholera Infantum.—Choleriform diarrhea in infants seems to be nearly always accompanied with abnormal permeability of the intestinal walls for saccharose, according to Woringer's experience. He gives the details of eight cases in infants from 2 to 9 months old, who were given albumin milk containing 5 per cent. saccharose. If the child vomited, the bib was weighed afterward. The permeability for saccharose disappears as recovery progresses, but the toxic phenomena may be well established before the intestinal walls show any signs of permeability. For this and for other reasons he declares that this permeability is not the cause of the toxic action.

Tuberculosis of the Heart in Children.—The few cases of this kind on record are summarized in turn, and a new case is described, with a small cavity at the right apex, cheesy degeneration of bronchial glands, and a tuberculous aneurysm at the apex of the heart of the 20 months boy. The rupture of the aneurysm was the immediate cause of death; the heart had never presented any grave symptoms before.

Latent Pott's Disease.—In Barbier and Arbeit's case the 19 months infant was apparently healthy when sudden asphyxia proved fatal. Necropsy revealed a large mediastinal abscess secondary to latent vertebral caries.

Bulletin de l'Académie de Médecine, Paris

April 18, 1922, **87**, No. 16

*Uterine Fibromas with High Blood Pressure. J. Heitz.—p. 422.
Icterohemorrhagic Spirochetosis. Ducamp et al.—p. 427.
Viscosity of Blood in Morphin Intoxication. P. Sollier.—p. 428.

Uterine Fibromas with High Blood Pressure.—Heitz comments on the frequency with which high blood pressure is found accompanying uterine fibromas. He was particularly impressed with the high blood pressure that had developed in 17 cases after hysterectomy; in 11 the operation had been done on account of hemorrhages; in 9 of these the pressure was still extremely high several years later. It is possible that a single cause may be responsible for both the fibroma and the high blood pressure, and that the bleeding from the fibroma is an important safety valve. He cites a couple of cases in which the pressure became very high a few weeks after the hysterectomy, and hemorrhages occurred in the retina or brain. Cerebral hemorrhage occurred in another case four years after the menopause had been induced by radiotherapy. Such cases warn to keep the woman under supervision after the artificial menopause by hysterectomy or radiotherapy. By small repeated venesection, severe kidney, brain or heart complications may be warded off for years.

Paris Médical

April 29, 1922, **12**, No. 17

Hermaphrodism and Its Varieties. A. Mouchet.—p. 345.
*Early Diagnosis of Uterine Cancer. A. Siredey.—p. 351.
*Extragenital Buboes. Massia and J. Lacassagne.—p. 356.

Early Diagnosis of Uterine Cancer.—Siredey remarks that the youth and the good general appearance often seem to render the idea of cancer preposterous, but he has had cases in women of 19 to 25. Bleeding is more irregular than with fibromas. The cancer is liable to bleed at the slightest jar, a drive or douche or exercise, even of the arms. The cervix may seem smooth but less elastic than normal, and it gapes. With cancer of the body of the uterus, almost the only appreciable sign is the increase in the size of the uterus; this is detected best in the standing subject. The speculum shows nothing wrong unless possibly the manipulations start a bloody discharge. The cervix does not share in the enlargement. Negative findings in an excised scrap must not be accepted with blind confidence.

Extragenital Buboes.—In a compilation of 38 cases of simple chancre on the arms, there were 6 with buboes. Palazy has compiled 40 cases of simple chancre on the head. Only 2

instances are known of a suppurating bubo with a chancre on the head. In the therapeutic inoculations of simple chancre, as practiced about 1850 by Auzias-Turenne, Sperino and Boeck, sometimes from 350 to 700 inoculations were made in a few months. No instance of a complicating bubo seems to have been observed, and this suggests that diagnostic auto-inoculation need not be rejected for fear of inducing a bubo. It is a mystery why buboes are so rare in women; no extragenital instance is known.

Schweizerische medizinische Wochenschrift, Basel

April 20, 1922, **52**, No. 16

*Cosmetic Operations on the Nose. E. Gallusser.—p. 381.
Plastic Operations on the Face. K. Schlaepfer.—p. 383.
Foreign Body in Infant's Bronchus. H. Stössel.—p. 386.
*Fracture of Radius. L. Conti.—p. 389.

Cosmetic Operations on the Nose.—Gallusser's illustrations show the excellent outcome in a few of the cases in which he has corrected saddle-back nose by introducing intranasally a prop of cartilage taken from the ribs, or he has reduced the size of a disfiguring nose by intranasal resecting of septum and cartilage. This is a more complicated and difficult procedure, but the nose always displays a remarkable tendency to smooth healing.

Fracture of the Radius.—Conti states that in 542 insurance cases of fracture of the lower end of the radius, the left arm was involved alone in 54 per cent.; the right in 40 per cent., and both arms in the others. A subperiosteal fracture was never encountered in persons over 17, but separation of the epiphysis occurred up to the age of 19. There were 24 cases of chauffeur's fracture, and in the whole 542 there were 42 per cent. in which the fracture was connected with the occupation. In 9 per cent. of the total the fracture occurred during gymnasium work. The fractures in the lower third healed on an average in six weeks; between the ages of 10 and 20, in four and a half weeks; in the fifties, in seven weeks, and after 60 in from eight and a half to eighteen weeks. All were cured but 5.5 per cent. of the men and 7 per cent. of the women. These were allowed compensation ranging from 10 to 30 per cent.

April 27, 1922, **52**, No. 17

Differential Diagnosis of Dementia Praecox. E. Fankhauser.—p. 401.
*Means to Accelerate Coagulation of Blood. R. Feissly.—p. 404.
Multiple Thrombosis After Influenza. W. Odermatt.—p. 408.
Colorimeter Test for Cystin. E. Herzfeld.—p. 411.
Necropsy in Case of Gynecomastia. T. Tobler.—p. 412.

Means to Hasten Coagulation of the Blood.—Feissly discusses the action of various thromboplastic preparations and other means to hasten coagulation. He has confirmed recent statements in regard to the regulating action on coagulation of mild roentgen-ray exposures of the spleen, and obtained practically the same effect by raying the jugular veins of the horse, and raying citrated blood. The plasma of citrated blood, deprived of its corpuscles, is not modified by the roentgen rays. He theorizes that these rays destroy the blood platelets, and thus realize an autocytozyme treatment. In treatment of hemophilia, he has finally settled on transfusion of whole citrated blood as the best means at our disposal to tide hemophiliacs through a period of dangerous hemorrhages. The amount required is small: 100 c.c. of blood, citrated at 2.5 per thousand, reduced the coagulating time to normal in fifteen minutes in his cases. This effect had worn off by the third day, but it was easy to repeat the transfusion. Joltrain noted in one case a kind of shock effect at the sixth injection and this shortened still more the coagulation time.

May 4, 1922, **52**, No. 18

*Sphygmobolography. H. Sahli.—p. 425.
*The Capillary Circulation at High Altitudes. P. Liebesny.—p. 431.
The Dulness with Pericarditis with Effusion. Attinger.—p. 435.
*Convulsions in Whooping Cough. W. Hoffmann.—p. 438.

Sphygmobolography.—Sahli has further elaborated his method of dynamic sphygmography, and combined it with work bolography and arteriometry. The record thus obtained on a single strip of paper presents, he asserts, everything that we need to know in estimation and comparison of circulatory disorders. Research on the dynamics of the blood, he adds, is the most backward of all fields of internal medicine, and he deplores the lack of consideration for his many years of efforts to correct the errors and perfect the technic of this physical examination of the circulatory system.

The Capillary Circulation at High Altitudes.—Liebesny discusses the relations between the changes in the capillary circulation and the increase in corpuscles and hemoglobin in the blood in the mountains.

Convulsions in Whooping Cough.—Hoffmann has had nine cases of convulsions in the prevailing epidemic of whooping cough in children. Symptomatic treatment had to be supplemented with heart tonics, especially camphor. He gave a subcutaneous injection of 1 c.c. of 20 per cent. camphorated oil morning and evening. This acts on both the heart and the spasms.

Archivio Italiano di Scienze Med. Coloniali, Tripoli

January-February, 1922, **3**, No. 1-2

*Paralysis Consecutive to Anthrax. R. Onorato.—p. 1.
Symblepharon from Home Bandaging for Catarrhal Conjunctivitis. E. Bartolotta.—p. 12.
Myiasis in Tripolitania. R. Onorato.—p. 14.

Postanthrax Paralysis.—Onorato here reports a second case of paralysis of the legs developing ten days after apparent recovery from a large malignant pustule on the hand which had subsided under intravenous serotherapy. No improvement was realized from electric treatment, and the bladder and anus became paralyzed likewise. The serotherapy was cautiously resumed by the subcutaneous route, and the sphincter functioning returned by the next day. By the third day the man could use his legs although they felt weak for six weeks longer.

Policlinico, Rome

April 17, 1922, **29**, No. 16

Experiences with Serotherapy. G. Berghinz.—p. 505.
*Bacteriologic Enrichment of Urine. G. Fragale.—p. 511.
Surgery of Large Intestine. S. Grasso.—p. 516.
Immunity to Influenza. D. Casiere.—p. 519.
Prophylaxis of Vulvovaginitis in Children. G. Massimi.—p. 520.
Hygienic Shaving Brush. A. Campani.—p. 520.

Enrichment of the Urine.—Fragale uses white of egg or blood serum, adding them in large amounts to the urine, and then precipitates the albumin by heating. This carries the tubercle bacilli down with it, and the supernatant fluid is decanted. The sediment is then dissolved with sodium hydroxid and the bacilli are then centrifuged out. About 2 or 3 c.c. of albumin to 100 c.c. of urine is a convenient proportion. The sediment is dissolved with 0.5 per cent. alcoholic solution of sodium hydroxid, five or six times the volume. The method can be applied without heating by precipitating the albumin with potassium ferrocyanid or Esbach's reagent. Another enrichment procedure is to apply to the urine Ficker's ferric sulphate test for typhoid bacilli in water.

April 15, 1922, **29**, Surgical Section No. 4

*Chronic Inversion of Uterus. A. Angeli.—p. 189.
*Effect of Thymectomy. G. Baggio.—p. 197.
Exudation Around Appendix and Cecum from Surgical Standpoint. O. Cignozzi.—p. 219.
Endothelial Tumors of Maxillary Sinus. R. Mosti.—p. 234.

Chronic Inversion of Uterus.—Angeli was unable to apply any of the usual technics in the extreme case of chronic inversion described. Through a transverse incision in the inverted fundus he detached the peritoneum from the uterus, and pushed in gauze to keep the bowel out of the way. Then he slit the uterus its entire length on both sides, thus forming two flaps. The uterine arteries and the pedicles of the adnexa were ligated on each side and the peritoneal funnel detached. He then sutured the peritoneum, pulling out the gauze by its long string. The pelvis was thus roofed over, and the uterus was then easily removed. There was very little hemorrhage, and this two-flap method gave ample access to the parts.

Effects of Thymectomy.—Baggio tabulates the effect of thymectomy in rabbits on the pancreas, genitals, thyroid, suprarenals, pituitary, general condition and weight. The findings, as in similar research by others, are conflicting; the

only constant effect seemed to be an increase in size of the suprarenals, but it was slight.

Riforma Medica, Naples,

March 27, 1922, **38**, No. 13

*Fracture of Neck of Femur. D. Taddei.—p. 289.
Rat Bite Fever. G. M. Fasiani.—p. 293.
Tuberculosis and the Endocrine Glands. D. Zibordi.—p. 295.
*Bladder Calculi in Children. O. Nuzzi.—p. 298.
Monilia Bronchitis. I. Jacono.—p. 303.

Fracture of Neck of Femur.—The subject of this bedside lecture was a woman of 72, the outward rotation confirming the fracture of the neck, although the trauma had been insignificant. Early massage and getting the patient up soon form the preferable treatment for these fractures in the elderly. Four or five days is as long as they should be allowed to stay in bed. They should then be got up in an easy chair, and in ten or twelve days, at latest, they should be encouraged to take a few steps with the aid of a crutch. This treatment helps to avoid the complications almost inevitable otherwise in the elderly. In younger subjects, treatment need not be so nihilistic. Good results may be obtained with an extensive plaster cast, but Taddei prefers Delbet's fixation with a screw and bone peg, driven axially into the neck, without opening up the joint. This is not so simple as it seems, for the screw must fit into the exact center of the femur head. This requires calculations and a special instrument.

Calculi in the Bladder in Children.—Nuzzi has operated in 15 cases of this kind in the last three years. Immobilization for vertebral or hip joint disease promotes the formation of calculi. One boy of 9 had to have the hip cast removed to allow suprapubic removal of a calculus. Most of the children were 6 or 7 years old, and the lithiasis was suggested by incontinence day and night, frequent or interrupted micturition, hematuria, pain in the end of the penis, frequent erections, straining, and involuntary manipulation of the penis. These symptoms are rarely associated. The children's straining in two cases had induced prolapse of the rectum, but this subsided after removal of the bladder stone. If the child can urinate better reclining than erect, and not at all when lying prone, a calculus blocking the outlet is probable. An illustration showing eleven calculi fastened on a card is compared with the roentgenogram of the same card. He urges the suprapubic incision rather than to take the chances of injuring the narrow passages by lithotrity in a child. Healing was perfect in 6 of the 13 cases in which he sutured the bladder at once. In 3 cases there was a briefly transient small fistula.

Rivista di Clinica Pediatrica, Florence

February, 1922, **20**, No. 2

*Atresia of the Intestines. L. Sironi.—p. 65.
Present Status of Schick Reaction and Immunization Against Diphtheria. A. F. Canelli.—p. 80.

Congenital Intestinal Atresia.—Sironi summarizes what is known to date in regard to stenosis and atresia of the bowel in the new-born. He adds to the hundred cases on record one in which the vomiting of bile by the 5 days infant was explained by valvular stenosis and atresia at the junction of the duodenum and jejunum and again lower down in the jejunum. The child died the day after the entero-anastomosis. Only two were saved of all the children given operative treatment.

Archivos Españoles de Tisiología, Barcelona

January, 1922, **2**, No. 4

Heliotherapy in Tuberculosis. Rollier (Leysin).—p. 1.
*Heliotherapy at Leysin. E. Balasch.—p. 33.
The Scientific Basis of Heliotherapy. A. Rosselet.—p. 35.
Roentgen Ray Therapy of Surgical Tuberculosis. Amstad.—p. 39.
*Heliotherapy in Nontuberculous Affections. Amstad.—p. 54.
Roentgen Control of Heliotherapy. Schmid.—p. 65.
Heliotherapy and the Skin. Leuba.—p. 84.

Heliotherapy at Leysin.—Balasch describes his impressions of Rollier's thirty-four hospitals at Leysin, with their 1,500 beds, saying that nothing can take the place of a personal visit for those specially interested in heliotherapy. All the articles in this number are from the Leysin school.

Heliotherapy in Nontuberculous Affections.—Amstad enumerates as indications for heliotherapy the convalescence from acute and febrile diseases, and general debility in young and old, but the persisting cause must be removed for it to be effectual, especially chronic dyspepsia. Benefit has been realized in rachitis, osteomalacia, rheumatism, amyloidosis, wounds (the infected in particular), and after operative treatment of osteomyelitis. He regrets that physicians so seldom utilize heliotherapy in their practice with these different affections. "The predominant importance of general treatment and the due appreciation of the *vis medicatrix naturae* have not yet won their proper place in medical practice."

Archivos Latino-Amer. de Pediatría, Buenos Aires

March, 1922, **16**, No. 3

*Tetanic Meningitis. Mamerto Acuña and F. Bazan.—p. 161.
Meningeal Mask of Pneumonia. Escardó y Anaya.—p. 168.
Amebic Liver Abscess in Infant. A. Carrau.—p. 172.
Habitual Vomiting in Boy. S. Satanowsky and M. T. Cafferata.—p. 176.
*Rupture of Tentorium. L. Velasco Blanco.—p. 179.
*Orthopedic Treatment of Talipes Varus. Rauenbusch.—p. 182.
*Anemia in Children. L. K. Wimmer.—p. 187.
Treatment of Gonococcus Arthritis. C. Pillado Matheu.—p. 191.
Tardy Recurring Tetanus. Mario Valabrega.—p. 198.

Meningitis of Tetanus Type.—The clinical picture from the tuberculous meningitis in the girl of 10 closely resembled tetanus. The child had been sick only two weeks, and the diagnosis at first wavered between tuberculous meningitis, strychnin poisoning and tetanus, although the loss of consciousness seemed to exclude tetanus. In the three cases of "tetanic meningitis" compiled from the literature, all in adults, syphilis and alcoholism had evidently cooperated.

Rupture of Tentorium.—Velasco confirms the diagnostic importance of jaundice in the new-born as a sign of hemorrhage. Lumbar puncture of new-born infants in Zarate's service has revealed the unsuspected frequency of intracranial hemorrhage in children delivered with forceps or in asphyxia.

Congenital Talipes Varus.—Rauenbusch deplores that physiologic modeling of the foot by orthopedic measures is so seldom applied. Surgical measures should be reserved for the exceptional cases. He has had orthopedic measures succeed even with adults of 30 and over.

Anemia in Children.—Wimmer insists that the pediatrist has to be a sociologist first and foremost. "The child requires childhood, that is, playthings and playmates as well as hygiene and a suitable diet." The general practitioner is too apt to forget this when examining a child with anemia.

Crónica Médica, Lima, Peru

January, 1922, **39**, No. 703

*Hydatid Cyst in Lung. A. Corvetto.—p. 3.
*Eye Affections. E. Campodónico and E. Ciotola.—p. 9.
Integral Autoserotherapy. E. Escomel.—p. 13.

Hydatid Cyst in Lung.—The woman of 40 seemed to have pulmonary tuberculosis as expectoration was profuse, with fever, emaciation and hemoptysis, until she finally coughed up pieces of hydatid cyst membrane, and recovered completely. In 12 other lung cases known in Lima, 2 were cured by operative measures, 7 coughed up the cyst membrane and recovered, and 3 died. There are no symptoms peculiar to this lesion of the lung, but radioscopy is usually decisive. Lung symptoms should not be ascribed to tuberculosis as a matter of course until after hydatid cyst has been excluded.

Disease of the Eyes.—Conjunctivitis formed 30 per cent. of the ocular affections studied, and 45 per cent. in this group were the work of the gonococcus; of the Koch-Weeks bacillus in 37 per cent.; the Morax-Axenfeld in 15 per cent., and the pneumococcus in 1.2 per cent. Infants under 6 months of age formed 25 per cent. of the whole. Trachoma was found in 14 cases, sarcoma of the orbit in 2, and an epithelioma, a fibroma and a granuloma in one case each.

Revista Española de Medicina y Cirugía, Barcelona

March, 1922, **5**, No. 45

*Feebleminded and Delinquent Children. J. Alzina y Melis.—p. 121.
Mercurial Treatment of Syphilis. J. Callico.—p. 126.
Scientific Dietetics. A. Arteaga Pereira.—p. 134. Cont'n.

Feebleminded and Delinquent Children.—The actual title of Alzina's article is "The Curious Aspects of the Care of Feebleminded and Delinquent Children in Belgium." He was impressed by the fact that training for a trade does not form part of the course at five of the Belgian institutions for the feebleminded he visited. Only at Gheel is work regarded from the dual educational and professional standpoint. Gheel is now organizing a special training school for the abnormal. He adds that those who have merely read descriptions of Gheel can have only a faint conception of the marvellous efficiency of this system of care of the feebleminded and insane. They live the common life in the farm homes, eating and working with the farmer's family. A school colony is to be opened this year at Waterloo, with work as the basis of the training. At Moll there is an observation station for abnormal boys. They are submitted for a month or two to what Rouvroy, the director, calls pedagogic observation, not dry mental tests. The juvenile court system in Belgium dates from 1912, and a medicopsychologic examination always precedes the judge's provision for the delinquent minor.

Archiv für Gynäkologie, Berlin

Feb. 16, 1922, **115**, No. 3

*Results of Treatment of Genital Cancer. A. Giesecke.—p. 435.
*Bilateral Removal of Adnexa. O. Beuttner.—p. 461.
*Prolapse of Female Genitalia. E. E. Pribram.—p. 479.
*Fat in Prevention of Adhesions. E. Löhnberg.—p. 497.
*Instrumental Compression of Aorta. L. Nürnberger.—p. 562.
Malignant Chorio-Epithelioma. T. Nagy.—p. 585.
Epinephrin Action on Surviving Uterus. M. Turolt.—p. 600.
Pathologic Anatomy of Gonococcus Ophthalmia. W. Lahm.—p. 611.
Fetal Malformation of Pelvis. G. B. Gruber.—p. 615.
*The Weissbach Stone Child. E. Vogt.—p. 624.

Ultimate Results of Treatment of Genital Cancer.—Giesecke analyzes the 798 carcinoma cases in Stoeckel's service in a recent ten years. His figures show 26.6 per cent. cured for five years to date of the 350 cervix cancers, and 47.62 per cent. of the twenty-one corpus cancers, but only one of the twenty-three vagina carcinomas.

Bilateral Removal of the Adnexa.—Beuttner advocates transverse wedge excision of the fundus of the uterus preliminary to removal of the diseased adnexa on both sides. His twelve illustrations show the technic and the advantages of this.

Prolapse of Female Genital Organs.—Pribram tabulates the treatment and outcome in a recent series of 786 cases of prolapse of the female genital organs. He adds that the treatment should not end with the operation, but the general health and the flabby tissues should be strengthened. Prophylaxis is the best treatment, beginning in youth, to keep the muscles toned up.

Fluid Fat to Prevent Adhesions.—Löhnberg reports encouraging results in long series of experiments on rabbits. Lesions were induced in the peritoneum sure to entail adhesions if left alone, but no adhesions developed when an ether extract of rabbit fat was injected in prophylaxis. He thinks there can be no doubt that human fat can be utilized in the same way in clinical cases. His experimental research has demonstrated that homogenous fat is harmless, used in this way, and that human fat was borne well by the animals. Conditions in the human peritoneum seem to be even more favorable than in the rabbit. Ether extraction seems to yield the most harmless preparation of fat for the purpose, although he has had no clinical experience with it.

Instrumental Compression of the Aorta.—Nürnberger's experiments with aorta clamps has proved that animals bear with remarkably little disturbance the upset in the circulation caused by isolated compression of the abdominal aorta.

A Stone Child.—Vogt gives illustrations of a petrified fetus from a tubal pregnancy at term, the lithokelyphos carried for thirty-five years.

Archiv für klinische Chirurgie, Berlin

March 8, 1922, **119**, No. 2

*Indentation of Stomach. H. Smidt.—p. 225.
*Resection of Stomach. H. Lorenz and H. Schur.—p. 239.
The Catgut Question. J. Fürle.—p. 277.
Retrograde Incarceration. B. Breitner.—p. 302.
*Gas Cysts on the Intestines. R. Wanach.—p. 309.
*Cranioplastic Operations. M. Saito.—p. 321.
*Softening of Epiphyses. E. Liek.—p. 329.
Surgical Complications of Typhus. R. Herzenberg.—p. 347.
Bilateral Fracture of Neck of Femur. A. Hübner.—p. 390.
Means to Locate Foreign Bodies. A. Berdjajeff.—p. 398.
Acute Osteomyelitis of the Patella. Rosenbach.—p. 403.
Paraurethral Inflammatory Tumor. Schultze.—p. 406.

Indentation of Left Outline of Stomach.—Smidt compared the roentgen-ray findings with the operative findings in 262 cases of gastric or duodenal ulcer, gallstones or gastroptosis. Indentation of the greater curvature was noted in about 20 per cent. of a total of 351 cases during the period. It was found indiscriminately with all kinds of pathologic conditions, and even in 4 of 37 cases with normal stomachs. It varied from time to time, and seems to be an expression of a generally increased tonus.

Resection of the Antrum in Treatment of Peptic Ulcer.—Lorenz and Schur present evidence that the antrum controls secretion in the stomach. They have recently reexamined 70 of the 208 persons treated by resection of the antrum for gastric ulcer. The details of 55 of these cases are given. None of the 43 whose antrum had been entirely removed have had any return of ulcer symptoms, but 7 of the 12 who had part of the antrum left still have more or less ulcer symptoms. However, Mandl, Frisch and Denk have published instances of peptic ulcer developing after antrectomy. There is evidently a special predisposition to ulcer in such cases, and for this as well as for other reasons, resection of the antrum should be preferred to gastro-enterostomy in all cases, they remark in conclusion.

Gas Cysts in the Intestines.—A woman of 48 was cured of gastric disturbance by a gastro-enterostomy, leaving the hard ulcer encircling the pylorus. At the operation the peritoneal cavity and bowel were found studded with gas cysts. Wanach discusses pneumatosis cystoides in general, emphasizing its usual spontaneous subsidence. His case brings to seventy-six the number on record. Only three are known with peritonitis from perforation. The course ranged from four weeks to ten years in the known cases, but the pneumatosis does not induce symptoms as a rule. There is nothing like it, he reiterates, in the rest of pathology, and its etiology is still a mystery.

Plastic Operation on Skull.—Saito commends for general adoption the technic he has successfully applied in two cases. He closed the gap in the skull with a flap from the scapula. This curves to fit well and has periosteum on both sides, while it is easier to obtain than a flap from the tibia, and the resection leaves no functional disturbance.

Softening of the Epiphyses.—Liek calls attention to the close analogy between the Legg-Calvé-Perthes, Schlatter and Köhler affections, and the fact they affect only boys, as a rule, during periods of active growth. The bilateral, multiple occurrence points to a constitutional factor, and he ascribes it to some functional derangement of the epiphyses which, in turn, he traces to the internal secretions. The epiphysis is not sound, to start with. When slight changes exist, there are merely "growing pains." When pronounced, there is softening of the epiphysis. Mechanical influences are an important factor, but the morbid changes in the epiphysis had preceded them. The fact that only boys seem to be affected suggests some secondary sexual characteristic element. Operative measures are futile and do only harm. As the growth progresses, the pathologic condition gradually rights itself.

Archiv für Verdauungs-Krankheiten, etc., Berlin

March, 1922, **29**, No. 5-6

Action of Various Salts and Other Substances on Liver After Their Introduction into Duodenum. M. Einhorn (New York).—p. 243.
Present Status of Gastric Ulcer. A. Schüle.—p. 268.
*Protein Therapy of Ulcer. Gottfried Holler.—p. 275. Conc'n.
*Duodenal Ulcer. G. Musa.—p. 302.
*Test Glycemia in Diabetes. R. Offenbacher and A. Hahn.—p. 318.
*Gastric Secretory Deficiency. J. Alsberg.—p. 328.
*Cardiovascular plus Digestive Disturbances. A. Dienstfertig.—p. 346.

Protein Therapy of Gastric and Duodenal Ulcer.—The previous instalment of Holler's article was reviewed in these columns, May 13, 1922, p. 1498. He now has a record of 120

cases treated in this way, and 11 typical cases are summarized here. He is convinced that the tonus in the autonomic nervous system is dependent on the condition of the nervous and the metabolic processes at the moment. The nervous element imprints the chronic character on it.

Duodenal Ulcer.—Musa comments on the rarity of induration and malignant degeneration of duodenal ulcers; in other respects they resemble gastric ulcer so closely that a single cause seems to be responsible for both. In examining 155 adult cadavers in the last two years, evidences of duodenal ulcer were found in 5.4 per cent. There were active ulcers in 20 and healed ulcers in 32. The male cadavers outnumbered the female, 32 to 19. In one case a chronic ulcer had perforated although it had never induced appreciable symptoms at any time before. There were in addition duodenal ulcers in 3 child cadavers. In the total 52 duodenal ulcer cases, death had been due to perforation in 10 per cent. There were multiple ulcers in only 2 of the 52 cases and in 3 of the 73 gastric ulcer cases.

Functional Tests in Diabetes.—This communication from Strauss' service emphasizes that a single record of the sugar content of the blood gives no reliable information as to the normal or abnormal character of the carbohydrate metabolism. This can be estimated with precision from the behavior of the sugar content of the blood during the first three hours or more after ingestion, fasting, of 50 gm. of glucose in 300 c.c. of tea. With true diabetes, the glycemia does not rise to its peak until the second or third hour, and sugar always appeared in the urine. The details of nine cases of diabetes, free from glycosuria at the time, are tabulated. From 0.125 the glycemia ran up to 3.36 in the second hour in one case, and the reaction was evident for three hours. If the glycemia after the peak in the second hour returns promptly to normal, then the disturbances can be ascribed to neurasthenia or endocrine factors. If it lasts longer than this, then a true disturbance of the intermediate sugar metabolism seems certain.

Achlorhydria and Anacidity.—Alsberg states that a constitutional anomaly, a substandard condition of the secreting parenchyma of the stomach, was evident in 40 per cent. of seventy men with the diagnosis of gastric achylia or anacidity. Achylia represents the condition when there is no hydrochloric acid and no ferments. When there are ferments, but little or no hydrochloric acid, the condition should be called achlorhydria or anacidity, and this may be secondary to gallstones, infectious diseases, etc., but in the majority of cases no exogenous factor can be discovered. A constitutional anomaly must be assumed in this group. The subject frequently seems to be normal otherwise, but it often accompanies neurasthenia, anemic conditions with lymphocytosis, and also gastric ulcer.

The Stomach Disturbances with Cardiovascular Disease.—Dienstfertig's tables reproduce the findings in regard to gastric acidity and the blood pressure in 113 cases of heart and vascular disease with gastric derangement but without organic lesions in the stomach.

Deutsches Archiv für klinische Medizin, Leipzig

April 18, 1922, **139**, No. 1-2

*Salt and Blood Pressure in Pneumonia. R. Prigge.—p. 1.
*Infectious Abortion in Cattle. M. Klimmer and H. Haupt.—p. 33.
*Nitrogen Wear and Tear. S. Lauter.—p. 46.
*Percussion and Auscultation Records. P. Martini.—p. 65.
Uricacidemia in Gout. S. J. Thannhauser and M. Weinschenk.—p. 100.
Primary Streptococcus Viridans Meningitis. Patzig.—p. 111.
*Coagulation of the Blood. P. Holzer and E. Schilling.—p. 114.

Hypertonic Saline to Raise Blood Pressure in Pneumonia.—Prigge injected by the vein from 20 up to 38 gm. of sodium chlorid in pneumonia, usually 25 gm. in 100 gm. of water—seeking thus to make up the deficit in sodium chlorid which seems to be one of the features of pneumonia. The salt disappeared rapidly from the blood, just as in the three healthy controls, but it was retained and was not cast off in the urine in a day or two, as occurs in the healthy. When the injection was made slowly, there were no subjective sensations, except a feeling of warmth and occasionally slight headache, but always intense thirst. There was never the slightest chill or rise in temperature or in the number of leukocytes, and nothing to indicate irritation of the kidney, except slight brief hemoglobinuria in two cases. On the other hand, the blood pressure always rose immediately by 15 to 35 mm. mercury. This he regards as extremely important from the therapeutic standpoint. The effect was manifest for six or seven hours but not into the next day. The eleven pneumonia patients treated in this way all showed rapid improvement for several hours as the low blood pressure was thus forced up.

Infectious Abortion.—Klimmer and Haupt review the recent literature discussing whether Bang's *Corynebacterium abortus-infectiosi* is pathogenic for man. They say that infectious abortion has become so common in cattle of late that the bacterium is probably extensively present in raw milk and its products. They urge special examination of all cases of human abortion, and ask to have specimens of the fresh blood of women who have aborted, and of the blood of the fetus or stillborn child sent to them for study (Hygienische Institut, Circusstr. 40, Dresden), especially from rural districts. Inoculation of guinea-pigs might be supplemented with serologic tests. They comment on the many points of analogy with Malta fever.

Nitrogen Metabolism in Children and Pregnant Women.—Lauter gages the nitrogen metabolism by the amount of nitrogen that is eliminated on an abundant nitrogen-free diet, and hence is of purely endogenous origin. He tabulates this *abnützungsquote* in a number of children and pregnant women.

Percussion and Auscultation.—Martini describes methods for objective records of the findings of percussion and auscultation, and the laws regulating them.

Coagulation of the Blood.—Holzer and Schilling present evidence that the elements responsible for coagulation of the blood may have their action checked by changes in the relative proportions of the ions in the blood. This is responsible for the retarding and reducing of coagulation in certain diseases, and perhaps also in certain predisposed persons.

Deutsche medizinische Wochenschrift, Berlin

March 17, 1922, **48**, No. 11

*Roentgen Irradiation of Sarcomas. L. Seitz and H. Wintz.—p. 345.
Basis of Dosage in Artificial Heliotherapy. P. Keller.—p. 346.
Spectral Analysis and Microscopy in Relation to the Utilization of Ultraviolet Rays. E. Richter.—p. 348.
*Criterions Applicable to Roentgen Apparatus. Levy-Dorn.—p. 348.
*Modification of Weber-Rammstedt Operation. Gohrbandt.—p. 351.
Vein-to-Vein Transfusion in Surgical Cases. Hempel.—p. 352. Conc'n.
Sequels of Puerperal Mastitis. L. Nürnberger.—p. 354.
Technic of Intravenous Injections of Oil. Lenzmann.—p. 356.
Seborrheic Eczema and Psoriasis. H. Sieben.—p. 357.
Retention of Urine Without Demonstrable Cause. Stutzin.—p. 357.
Hypnotizing a Subject Against His Will. Costa.—p. 358.
Prophylic Alcohol as a Disinfectant. J. Christiansen.—p. 358.
General Paresis. R. Henneberg.—p. 359.
Dermatologic Technic. M. Joseph.—p. 361.

Roentgen-Ray Treatment of Sarcomas of the Genito-Urinary Organs.—Seitz and Wintz, directors of the University Women's Hospitals in Frankfort-on-the-Main and Erlangen, respectively, state that, in view of the difficulty of differential diagnosis between myoma and myosarcoma, they regard it as very important that we have in roentgen rays a means of establishing a delicate differential diagnosis in most cases. On irradiating an ordinary myoma, the effect is first seen in the suppression of ovarian activity. After two or three months the menses no longer occur and there is a reflex effect on the myoma. In the course of the next few months the tumor begins slowly to retrogress. After from twelve to eighteen months, it has almost disappeared. But irradiating a sarcoma or a myosarcoma, employing from 60 to 70 per cent. of an erythema dose, destroys the sarcoma cell. After two or three weeks, and occasionally immediately after the irradiation, a marked shrinking and rapid diminution of the tumor is noted. Thus, in ordinary, typical cases, a differential diagnosis as between myoma and sarcoma may be established by the varying behavior of the tumor—whether it shrinks rapidly or slowly. This presupposes, however, that a uterine tumor which, on account of its softness, its rapid growth and other clinical signs, is suspected of being malig-

nant is given not a so-called castration dose of 34 per cent. of the erythema dosage, but the full sarcoma dose of from 60 to 70 per cent. Their experiences of the last four or five years have proved that it is possible to cure uterine sarcomas by the application of roentgen rays. Of four patients, aged from 14 to 21, three were still living after three and a half years and two after nearly five years. Veit's statistics showed 20 per cent. of the patients alive three to five years after the operation. Operative results are not nearly so good. Of 35 patients with sarcomas of the genito-urinary organs, whose cases extend back from two to five years, they have been able to effect a lasting cure in 74 per cent. Of 97 patients with sarcomas located outside of the genito-urinary organs they were able to save 33 per cent. (from two to three years having elapsed since treatment).

The Criterions Applicable to a Roentgen Apparatus to Be Used for Therapeutic Purposes.—Levy-Dorn of Berlin discusses the difficulties that confront the prospective buyer of a roentgen apparatus. What are the main points to be considered? The apparatus must enable us to make use of any of the methods now in vogue. It must therefore furnish the necessary hard and soft rays and must have a sufficient capacity as regards quantity of rays producible so that the sittings need not be prolonged unduly. The apparatus must be durable; its action must be uniform, and it must be easy to regulate. Protective devices for personnel and patients must be adequate, and economy of operation must be considered.

Wedge Resection Instead of Simple Incision in Operative Treatment of Congenital Hypertrophy of the Pylorus.—Gohrbandt reports six cases of pylorospasm in which Hildebrand's modification of the Weber-Rammstedt operation was followed, with the result that the wound healed without the slightest complication. He found from the literature that in 425 cases in which operation was by the Weber-Rammstedt method the mortality was 12.7 per cent. He reports the necropsy findings in an infant of 7 weeks. In the five days that had elapsed since the operation the cut surfaces had become adherent. Although the operation had been properly performed, the incision gaping wide and the mucosa separated from the muscularis in correct form, yet at necropsy it was only with difficulty that any sign of an incision could be discovered. He found by experimentation on dogs, in whom artificial pylorospasm had been produced, that usually in five days from the operation the cut surfaces adhered so tightly that even the strongest peristaltic movements could not separate them. Hildebrand resects a wedge, the point of the wedge toward the mucosa. This requires no more time and does not make the operation more complicated. If the right place is chosen, where there are no large blood vessels, hemorrhage need not be more profuse though the wound surfaces are larger. The main advantage is that it prevents too early adherence of the edges of the wound.

Klinische Wochenschrift, Berlin

Feb. 11, 1922, **1**, No. 7

The Tetany Syndrome and Its Pathogenesis. E. Frank.—p. 305.
Myo-Electric Researches on Hypnotic Catalepsy. E. Rehn.—p. 309.
*Pregnancy and Menstruation Glycosuria. H. Küstner.—p. 312.
Inflammatory Eye Affections of the New-Born Since the War. R. Salomon.—p. 313.
Results of Pneumothorax Treatment in Tuberculosis. Fraenkel.—p. 315.
Traumatic Lesions of the Talus. F. Lotsch.—p. 318.
Operative Treatment of Fractures (Lane). F. Selberg.—p. 320.
Dependence of the Action of Quinin Alkaloids on Bacteria on Alkalinity. L. Michaelis.—p. 321.
Influence of Chlorophyl Preparations on Human Metabolism. H. Koenigsfeld.—p. 322.
Movement of Air in Alveolar Passages of Lungs. Dreser.—p. 322.
Tuberculin Test in Relation to Scrofula. Landenberger.—p. 322.
The Fixation Bandage in Bone Fractures. F. Loeffler.—p. 325.
The Physician as a Teacher of Hygiene. Effler.—p. 327.
Present Status of Micromethods in Diagnosis. R. Freise.—p. 332.

The Glycosuria Test of Early Pregnancy.—Küstner's research has apparently established that test alimentary glycosuria occurs not only in the pregnant but also under certain other conditions. It seems to be connected with some change in the functioning of the ovaries, as it was encountered only in the few days before menstruation and early in pregnancy. This suggests, he says, that the corpus luteum has some influence on carbohydrate metabolism, in that it makes the kidneys permeable for sugar. He urges research to determine whether the kidneys become permeable for sugar in animals during the first days and weeks after fecundation. Also whether feeding nongravid animals with ovarian substance would increase or reduce the tolerance for sugar. Also the response to test ingestion of sugar in women whose ovaries have been removed or their functioning modified by the roentgen rays. Among the suggestive cases reported is one in which the pregnancy had been interrupted at the third month. The alimentary glycosuria continued for three days but on the fourth day the response was negative. He makes the test by injecting 0.5 mg. epinephrin and giving 10 gm. glucose by the mouth, and then examining the blood and the urine for sugar every half or three quarters of an hour. (Compare with recent abstracts in THE JOURNAL on pages 1768 and 1855.)

Zeitschrift für Tuberkulose, Berlin

March, 1922, **36**, No. 1

Tuberculosis in Relation to Housing at Bonn. A. Beekmann.—p. 1.
Chemotherapy in Tuberculosis. W. Müller.—p. 26.
Neurotomy of Superior Laryngeal Nerve in Treatment of Laryngeal Tuberculosis. W. Teller.—p. 35.
Eight Years of Experiences with the Friedmann Remedy. P. Kleeman.—p. 37.

Medizinische Klinik, Berlin

April 9, 1922, **18**, No. 15

*Arsphenamin Questions. J. Citron.—p. 459.
*Calcium Nitrid Poisoning. E. Hesse.—p. 461.
*The Abdominal Vagus Reflex. F. Glaser.—p. 462.
Gas Bacillus Infection of Liver After Shot Wound. Marx.—p. 464.
*Protein Therapy plus Serotherapy. P. Schmidt and Walter.—p. 467.
Subacute Phases of Coxa Deformans. L. Schmidt and Weisz.—p. 469.
Treatment of Tuberculosis of the Skin. J. Schweig.—p. 470.
Diagnosis of Scabies. E. Bäumer.—p. 471.
*Protein Versus Immune Therapy. Hoefer and Herzfeld.—p. 473.
*The d'Herelle Phenomenon with Streptococci. Piorkowski.—p. 474.
Recent Progress in Urology. R. Paschkis.—p. 478.

Arsphenamin Questions.—Citron enumerates among the causes of by-effects from arsphenamin treatment, besides those for which the quality of the drug and the dose or technic are responsible, the patient's constitution, permanent or transient, thymic-lymphatic status, vagotonia, latent or active microbism, lesions in liver, kidneys, etc., the localization of the syphilis, and the stage of the allergy. Acute yellow atrophy in syphilis was known before arsphenamin was invented, and in Lebert's three cases, in 1854, not even mercury had been given. All are agreed that acute yellow atrophy of the liver has become unusually common during the last five years, both with and without syphilis, but there is no evidence that arsphenamin is responsible for it. His impression is that the syphilis is responsible for the jaundice and the encephalitis, but the arsphenamin may be the last straw that brings it on.

Fertilizer Lesions.—Hesse reports experimental research with calcium nitrid which is being used more and more extensively as a fertilizer. It is liable to cause a dermatitis, to injure the respiratory apparatus and to induce an affection resembling the hyperemia of amyl nitrite, plus malaise and acceleration of the pulse. The attack lasts only a few hours and leaves no traces. Its special feature is that it develops only when alcohol is taken, and the attack can be brought on by giving the essential element of the calcium nitrid, cyanamid, with alcohol. No antidote is known. Prophylaxis is the main thing in factories, good ventilation, keeping down dust by adding oil, and protecting with a mask against inhalation, but, above all, by refraining from alcohol.

The Abdominal Vagus Reflex.—Glaser describes research on Widal's hemoclastic crisis, the leukopenia that follows drinking a glass of milk, fasting. He explains the phenomenon in a different way from Widal, ascribing it to the action of retained bile acids, and the leukopenia that follows to the altered distribution of the leukocytes, owing to dilatation or contraction of the vessels under the influence of the retained bile acids. He calls this test alimentary leukopenia, "the abdominal vagus reflex," and states that it occurs as a

physiologic phenomenon in children up to puberty; it occurs also in vagotonia; with derangement of the liver and consequent retention of bile acids; it occurs further with anaphylaxis, urticaria, and anaphylactoid purpura and thrombopenia; it occurs also in the pregnant, and possibly also in diabetes, and with symptoms indicating pressure on the brain. In the course of his research he discovered an instructive vagotonic reaction. This is the opposite response of the blood vessels and blood count in the healthy and in the "vagotonikers" when one leg is dipped in hot water or in cold water. The alimentary leukopenia is due to reflex stimulation of the vagus and consecutive dilatation of the vessels in the skin.

Protein Therapy plus Serotherapy in Gonorrhea.—Schmidt is an ophthalmologist, and he here reports a combination of protein therapy and means to induce a serous discharge at the height of the febrile reaction, plus reinjection of the serous fluid. He calls this triple method, the *heilfieber-serum-stauung* plus vaccination with autogenous secretions, and has found it amazingly effectual, he says, in eye affections. Walter describes its application in fifty-three cases of gonococcus urethritis with a cure in 41 per cent. of the cases, including old chronic rebellious cases. Inducing the exudation of serous fluid at the height of the febrile reaction to the parenteral injection is regarded as the main element in the treatment. The drug found best adapted to induce this *serumaustritt* was ethyl-morphin hydrochlorid; 10 c.c. of a 10 per cent. solution was injected into the urethra six or eight hours after the subcutaneous or intramuscular injection of 5 c.c. of milk, boiled for four minutes in the water bath. The solution is held in the urethra for ten minutes. In recent cases the secretion was injected subcutaneously beforehand, as a vaccine, to induce production of antibodies; this was not necessary in the old cases. In Walter's fifty-three cases no benefit was apparent in any case within a week after infection, while from the eighth week onward success was realized in 100 per cent. of the cases.

Experimental Protein Therapy.—No reenforcing of the action of tetanus antitoxin could be discovered in the tests on mice when the immune therapy was supplemented with protein therapy. The latter alone could not compete at all with the effect of the specific antitoxin.

The d'Herelle Phenomenon.—Piorkowski comments on the frequent transformation of hemolytic streptococci in the tonsils into the viridans form. He found that cultures of streptococci are liable to develop the d'Herelle bacteriophagum transparent spots on a glucose-egg white-bouillon culture medium. The number and size of the spots throw light on the prognosis, the outlook being more favorable the more intense the process. He injected 1 c.c. of the bacteriophagum fluid, the *aufhellungsflüssigkeit*, into animals with streptococcus sepsis and three weeks later the blood was free from streptococci while the control animals still had them. He ascribes the bacteriophagia to a ferment action, the ferment formed by the body as a reaction to the invasion.

April 16, 1922, **18**, No. 16

The Prevailing Influenza. H. Curschmann.—p. 491.
Treatment of Abortion. F. Engelmann.—p. 493.
*Arteriosclerosis. W. Frey.—p. 495.
Pseudo-Entropium of the New-Born. Elschnig.—p. 498.
*Tuberculous Articular Rheumatism. H. Gorke.—p. 499.
Agglutination of Tubercle Bacilli. E. Christensen.—p. 502.
*Own Urine Test for Active Tuberculosis. Heimberger.—p. 504.
Tardy Relapses of Malaria. K. Brandenburg.—p. 508.
Present Status of Treatment of Acquired Deformities in Children. S. Peltesohn.—p. 509.

Arteriosclerosis.—Frey recalls that hyperemia in an organ follows increased functional use and is not primary, and that lactic acid and phosphoric acid tend to induce contraction of muscle. Carbon dioxid also has a vasoconstricting or vasodilating action according to its concentration. Arteriosclerosis is generally regarded as connected with the wearing out of organs, but this wearing out may be from chemical and toxic influences as well as from mechanical factors. The intermediate metabolism is responsible further for the reflex hypertonia so common with arteriosclerosis. These and other facts which he cites help to explain the nervous phenomena in the vascular system in arteriosclerosis, and the connection between much functional use of an organ and the arteriosclerosis and hypertonia: The formation of lactic acid and phosphoric acid and of nitrogenous waste are the driving factors. Repose of the organ reduces its metabolism and the production of these products, and the reflex does not occur, but too much repose leads to atrophy. A milk-vegetable diet keeps down production of acids; some advocate alkali in treatment. Rumpf ascribes the benefit from potassium iodid to its action as an alkali. The reflex hypertonia indicates irritability of the nervous system, and small doses of bromids are of good effect. By physical and other measures the circulation through organs may be improved; venesection may have a similar action, and administration of theobromin.

Tuberculous Articular Rheumatism.—The man of 47 had also multiple tuberculous abscesses in the subcutaneous cellular tissue.

The Own Urine Test for Tuberculosis.—Heimberger reports that the findings with Wildbolz's urine test corroborated the clinical course in his twenty-five cases. He is convinced that an active process can be excluded when the outcome is negative, even with a positive tuberculin reaction.

Münchener medizinische Wochenschrift, Munich

March 17, 1922, **69**, No. 11

Tuberculosis and Constitution. F. Müller.—p. 379.
Anthropometry. R. Martin.—p. 383.
Carbon Dioxid Freezing of Sciatic and Saphenous Nerves to Arrest Pain of Angiospastic Origin in the Legs. A. Läwen.—p. 389.
*The Constitution and the Endocrine System. O. Wuth.—p. 392.
Roentgen-Ray Diagnosis of Disease in Genito-Urinary Organs. Janssen.—p. 394.
Treatment of Peritonsillitis. H. Dahmann.—p. 396.
Wavy Skin Incision; Its Indications. A. Ritschl.—p. 397.
Apparatus for Mobilization of Foot and Toes. Hohmann.—p. 397.
Perineal Cramp. K. L. Elsner.—p. 399.
Fixation of Head Aids in Prophylaxis of Nausea on Irritation of Vestibule. Fischer and Wodak.—p. 400.
Treatment of Oxyuriasis. W. T. Schmidt.—p. 400.
"Tuberculous" Versus "Phthisic." F. Marchand.—p. 401.
Blood Examination by General Practitioner. Morawitz.—p. 402.

The Constitution and the Endocrine System.—Wuth thinks we have in thyrogenic psychic disturbances a group of affections in which there is abundant evidence for believing that the psychic habitus is influenced by somatic anomalies. For example, we find associated with a pathologic decrease in the activity of the thyroid gland a corresponding apathy, a diminution of mental alertness, mental energy or psychomotility. Charcot referred significantly to the "winter sleep of the psyche." Kocher coined for cretins the expression "plant men." In thyroid disturbances characterized by a hyperfunctioning of this organ we have increased excitability and emotional instability. Other psychic changes may be associated with disturbances of the pituitary gland or the generative glands and may manifest themselves by a phlegmatic temperament. While it is true that many questions bearing on the endocrine system and its effects on the body are not cleared up as yet, we can nevertheless say with a considerable degree of certainty that all the aforementioned psychic anomalies have this in common that the organs giving rise to the psychic change belong to the endocrine system. This conception is supported by therapeutic experience and to a certain extent by animal experimentation.

March 24, 1922, **69**, No. 12

Endocarditis Chronica (Lenta). H. Curschmann.—p. 419.
Relations Between Tetany and Rachitis. Freudenberg and György.—p. 422.
Roentgen Treatment in Menopause Disturbances. Groedel.—p. 423.
Technic and Limitations of Laparoscopy. R. Korbsch.—p. 426.
Mixtures of Mercury and Arsphenamin. S. Rothman.—p. 427.
Errors in Dosimetry in Deep Roentgen Therapy. Schempp.—p. 429.
Keratosis Tonsillaris. E. Gäbert.—p. 431.
Age plus Thickness of Fat in Abdominal Wall the Sole Criterion of State of Nutrition. K. Käding.—p. 433.
Superiority of Sodium Hypochlorite for Homogenization of Sputum. Edith Rosenkranz.—p. 434.
Idiosyncrasy for Cow's Milk. E. Neter.—p. 435.
Use in Medicine of Domestic Flora. A. von Schrenck.—p. 435.
Koplik Spots in Influenza. B. Asal-Falk.—p. 437.
Roser-Nélaton Line with Nontraumatic Hip Disease. Kind and Weskott.—p. 437.

*Wearing of Urinal in Combating Enuresis. Plato.—p. 438.
Restoration of Blood Volume and Cardiac Stimulation, Following Hemorrhages. Wieting.—p. 439.

Urinal in Treatment of Enuresis.—Merely for the convenience of the household, Plato ordered the children to wear a urinal day and night, but was surprised to find that it had an unmistakable therapeutic action. When the children found that their infirmity did not attract the attention of others, and that they could join in games, attend the theater, etc., the calming effect, the undisturbed sleep, and other obvious factors cooperated so that in a few months the urinal could be discarded completely. This required six weeks, eight weeks and four months in his three cases, and three to five months in thirteen of fifteen boys in an orphan asylum. In only two instances was the enuresis refractory.

Wiener klinische Wochenschrift, Vienna

March 9, 1922, **35**, No. 10

Decomposition of Biliary Pigments by Anaërobic Intestinal Bacteria Causing Putrefaction. F. Passini.—p. 217.
Vasomotor Disturbances in Cerebral Hemiplegias. Kahler.—p. 219.
Hemolytic Characteristics of Drugs as Indication of Power to Form Infiltrates. K. Peyrer.—p. 222.
Temporary Natural Resistance to Syphilis. R. Brandt.—p. 223.
Treatment of Blepharospasm. N. Blatt.—p. 225.

March 16, 1922, **35**, No. 11

Chronic Bacillary Dysentery and Colitis. Kling.—p. 239. Conc'n No. 12, p. 271.
Psychophysical Problem in Sexual Pathology. O. Schwarz.—p. 243.
A Case of Balantidiasis Coli. R. Kolisch.—p. 246.
Involvement of Larynx in Acute Articular Rheumatism. Hutter.—p. 247.
"Intradermal Reaction in Lupus." Kusan.—p. 248. Reply. Busacca.—p. 250.

Zeitschrift für Kinderheilkunde, Berlin

April 12, 1922, **32**, No. 3-4

The Stigmas of Premature Birth. J. Rosenstern.—p. 129.
Vascular Changes in Infantile Scurvy. T. Ide.—p. 165.
Growth of Previously Undernourished Children. Goldstein.—p. 178.
Feeding Problems with Congenital Syphilis. E. Stransky.—p. 199.
Calcium in Spasmophilia. T. Geussenhainer.—p. 215.
Research on Equilibration in Children. E. Schur.—p. 227.
Endogenous Infection of Duodenum. K. Scheer.—p. 240.
Influence of Saline Injections. L. Stoltenberg.—p. 246.

Stigmas of Premature Birth.—Rosenstern refers to certain abnormal proportions and other stigmas which become apparent in the prematurely born and gradually disappear in the course of a few years. The head grows large and the brain grows still larger, so that the pressure is increased, and there is a tendency to spasms, a frog type of face, and often an exceptional size of the genitals in the male infants. The illustrations showing these stigmas impress one with the importance of what these children lost by their premature birth, probably maternal hormones.

Vascular Changes in Infantile Scurvy.—Ide found endarteritis of the medium arteries in three of four infants with Barlow's disease in Pirquet's service in Vienna. One of the children had symmetrical gangrene of both feet.

Calcium Content of Blood in Spasmophilia.—Geussenhainer reports research on the isolated frog heart with serum from infants and other children. The calcium content of the blood could be estimated by the effect on the frog heart. The influence of calcium given by the mouth was plainly evident in the behavior of the frog heart, but this lasted only as long as the calcium was being given. By the next day not a trace of it was apparent. He accepts this as evidence that calcium treatment in spasmophilia has no causal efficacy; the effect is transient. He states in conclusion that his research has shown a previously unsuspected change in the composition of the blood from calcium treatment. It has also rendered dubious whether the poverty of the blood in calcium can be regarded as responsible for the tetany, either alone or quantitatively.

The Static Organ in Children.—Schur investigated the vestibular apparatus in large numbers of healthy children, testing them with the revolving chair and with heat and cold applied to the ear.

Endogenous Infection of the Duodenum.—Scheer comments on the necessity for resting and sparing the small intestine with endogenous infection of this upper portion of the bowel. Food has to be cut off, while other food disturbances may be directly injured with this. Hence the importance of differentiating these conditions. The duodenal tube is too complicated for general use, and Scheer says that his 150 tests on ninety-five infants have demonstrated that when colon bacilli get up as far as the small intestine, they do not stop here but keep on up into the stomach. The colon bacillus is sensitive to acid, and the infant stomach is hyperacid in severe dyspepsia. But if the stomach is aspirated in half an hour or an hour after feeding, the acid content is low. With normal acidity and no colon bacilli, we can be sure there are no colon bacilli in the duodenum, and the assumption of endogenous infection can be dropped. If colon bacilli are found, we can be sure that they are in the duodenum likewise. If the acidity is very high, the examination should be repeated at an earlier phase of digestion. Repeated application of the procedure allows oversight of the progress of the enteritis.

Influence of Saline Injections in Children.—Stoltenberg refers to the influence on the temperature and on the chlorin and nitrogen content of the blood. His findings differ from Scheer's in certain respects.

Zeitschrift für urologische Chirurgie, Berlin

April 11, 1922, **9**, No. 1

*The Uranin Test of Kidney Function. E. Roedelius.—p. 1.
*Kidney Cancer in Children. R. Peicic.—p. 9.
*Treatment of Tuberculous Seminal Vesicles. T. Hryntschak.—p. 17.
Cystoradioscopy. D. Eisenstädter.—p. 38.

The Uranin Test of Kidney Function.—Roedelius relates that in Kümmell's service at Hamburg it was found that after ingestion of 1 gm. of fluorescein sodium (uranin), it appeared in the urine in ten minutes and had disappeared by the end of the fortieth hour in normal persons, and in those with digestive disturbances but with functionally capable kidneys. With suspected disease of one kidney, the test is decisive only when it is negative. Persistence of the stain in the urine after the fortieth hour testifies to pathologic conditions, as also when the urine does not show the stain in ten minutes or soon thereafter. The test is most instructive with prostate disease and its consequences. If the ureters have to be catheterized, the indigocarmin technic is preferable. But otherwise, and when it is desirable to repeat the test often, this simple uranin procedure is very useful. The longest delay in the elimination of the stain, 158 hours, was in a case of cancer of the prostate. With enlargement of the prostate, a normal response was obtained only in one of the numerous cases tested. The elimination continued to the forty-second to the sixtieth hour in all the other prostate, bladder and urethra stenosis cases. In one case of pyelonephritis and cystitis, the elimination kept up for eight days.

Kidney Cancer in Children.—In Peicic's case the tumor in the girl of 11 was a tubular adenocarcinoma originating in the excretory portion of the fetal kidney. The tumor measured 14 cm. in diameter and the weakly child has developed into a robust girl since the nephrectomy.

Tuberculous Seminal Vesicles.—Hryntschak says he does not advocate operative treatment of tuberculous seminal vesicles so long as they are not palpable. But if they are palpable, the absolute inefficacy of all other measures justifies surgical intervention, especially by Voelcker's simple technic. He reports six cases in which he applied it. The general health improved remarkably. The tuberculous epididymis was removed beforehand, but the testicle was left when possible; this is the only genital organ that seems capable of healing a tuberculous process. To remove a tuberculous epididymis and leave tuberculous seminal vesicles seems futile.

Zentralblatt für Gynäkologie, Leipzig

Feb. 11, 1922, **46**, No. 6

Case of Primary Carcinoma of the Tube. I. Amreich.—p. 209.
Treatment of Puerperal Fever. Hiess and Hirschenhauser.—p. 214.
Reduction of Mortality of the Freund-Wertheim Carcinoma Operation. P. von Kubinyi.—p. 222.
Trichomonas Vaginalis and the Glycogen Content of the Vagina in Relation to Vaginitis and Leukorrhea. A. Loeser.—p. 226.

Test of Virulence of Streptococci by Sigwart's Method. Neuer.—p. 229.
Uterus Torn Out During Delivery. M. Behrend.—p. 234.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

March 18, 1922, **1**, No. 11

*Articles Copied from Medical Journals. G. Van Rijnberk.—p. 1058.
*Tuberculous Iridocyclitis. A. J. de Favauge-Bruyel.—p. 1061.
Organ of Equilibration. F. H. Quix.—p. 1071.
Simple Colorimeter. J. de Haan.—p. 1076.
Vaccination Against Diphtheria. L. A. Wesly.—p. 1082.
Localization of Function in the Kidney. J. Goudsmit.—p. 1084. Conc'n No. 12, p. 1183.
Impressions of Graduate Course at Leysin. De Bloeme.—p. 1114.

Medical Journals and the Lay Press.—The Leyden branch of the Netherlands Medical Association recently was much exercised over a complaint that a certain person recognized himself in a published description of a case that appeared in a daily paper, having been copied from the *Nederlandsch Tijdschrift*, the organ of the association. The editor of the *Tijdschrift* comments that he blue-pencils many a report sent in, for fear of that very occurrence, but, at the same time, if no report could be published that might not be recognized by the patient or his family, nothing but ancient history could be published. The writer of the report in question says that he left out all particulars that could be omitted. The editorial adds, "The physician reports the case to his professional mates for their instruction and in the interests of other sick persons. If a lay paper republishes it and harm results, then the lay editor is responsible for this and no one else." The *Tijdschrift* and the Rotterdam branch of the association have already protested against the republication in the lay press of articles from medical journals, citing some of the numerous objections against this.

Tuberculous Iridocyclitis.—Bruyel's patient was a youth of 16 whose vision had been declining of late and nodules had been developing in the face, back and legs; bilateral iridocyclitis was accompanied with Boeck's miliary lupoid skin affection. This is the third case of this combination he has encountered, and he knows of eight similar cases on record. His other patients were men of 18 and 48. In two other cases the bilateral chronic iridocyclitis was also accompanied with a skin affection. In all these cases the skin disease was of a tuberculid nature. One of his own patients presented pseudoleukemia besides. In a sixth personally observed case, iridocyclitis accompanied pulmonary tuberculosis. The skin should be examined in cases of tuberculous eye disease. No dependence can be placed on a negative tuberculin test in these cases.

March 25, 1922, **1**, No. 12

A Stimulating Hygiene Exposition. P. Muntendam.—p. 1154.
*Progress in Tropical Medicine Since 1913. W. T. de Vogel.—p. 1157.
Lymphatic Blood Picture with Acute Infection. I. Snapper, R. Rijkens and A. J. L. Terwen.—p. 1168.
Malaria in Holland. L. A. Faber.—p. 1172.
Rosenow and Focal Infection. E. Bergsma.—p. 1210.

Recent Progress in Tropical Medicine.—This is the presidential address delivered at the opening of the Fourth Congress of the Far Eastern Association of Tropical Medicine last August in Java.

April 1, 1922, **1**, No. 13

Extracts from Old Herbals. G. van Rijnberk.—p. 1254.
*Congenital Marble Skin. C. H. J. van Lohuizen.—p. 1259.
*Movements of the Uterus. I. A. Wijsenbeek.—p. 1263.
The Dangers of Homosexuality. E. van Dieren.—p. 1270.
*Plague in the Seventeenth Century. J. J. van Loghem.—p. 1275.
Historical Magic Remedies: The Hippomanes. M. A. van Andel.—p. 1280.
Three Surgeons Who Were Also Sheriff and Bailiff. Bakker.—p. 1284.
Unicorns. J. B. F. van Gils.—p. 1287.

Congenital Marble Skin.—The universal telangiectasis covered the entire body of the child except part of the face, palms and soles. The color was the bluish red of a nevus. The family and the child were normal otherwise in every respect, and no cause could be discovered for this congenital marbling of the skin. It is shown in a colored plate. No record of an analogous case has been found.

Movements of the Uterus.—This communication from the pharmacology laboratory of the University of Amsterdam reports study of the movements of the rabbit uterus through a transparent celluloid window made in the abdomen. Nothing was seen of the swinging movements which occur in the surviving uterus experiments. The development and movements of the gravid uterus and the effect of drugs on the uterus were instructively studied in this way.

Plague in the Seventeenth Century.—Although the connection of rats with the plague was not known at that time, van Loghem has found many references to the fact that rats were house companions and very numerous. This tends to confirm the identity of "black death" and modern bubonic plague.

April 8, 1922, **1**, No. 14

*Corneal Abscess. H. J. Flieringa.—p. 1408.
*Persisting Psychosis After Influenza. H. Schade.—p. 1416.
*Oatmeal Days in Diabetes. A. Foyer.—p. 1420.
*Indicator for Oxygen. M. van Riemsdijk.—p. 1423.
Tuberculous Salpingitis. J. A. van Dongen.—p. 1428.
Acute Cerebral Tremor. A. Willemse.—p. 1433.
Present Status of Obstetric Paralysis. R. J. Harrenstein.—p. 1435.
*The Woman's Hospital in New York. E. Bergsma.—p. 1462.

Ring Abscess in the Cornea.—Flieringa reports research on rabbits which throws light on the factors responsible for a ring abscess in the cornea. It is always a serious affection.

Postinfluenzal Mental Disturbance.—In Schade's three cases the loss of memory and inability to concentrate the attention have persisted unmodified to date, two years in two of the cases. The patients were previously normal and the families are healthy.

Diabetes.—Foyer emphasizes that the blood sugar must be kept under supervision, especially before attempting an operation on a diabetic. "With high sugar content in the blood and low glycosuria, to give oatmeal is like taking in the Trojan horse."

Ideal Indicator for Oxygen.—Van Riemsdijk announces that the simple indicator he uses is decolored by the absence of oxygen, and it thus is extremely valuable for the control of absorption of oxygen in cultivating anaërobes. Methylene blue answers the purpose, but this takes too long. Glucose in an alkaline solution is a very sensitive and reliable indicator; it reveals even 0.4 of a millimeter of oxygen. The proportions have to be exactly correct: 3 c.c. of 10 per cent. glucose filtered, plus one drop of normal sodium hydroxid solution, and one drop of methylene blue solution (50 mg. in 30 c.c. of distilled water). Double strips of absorbent gauze are dipped in this fluid and spread against the wall of the test tube which is then placed open in the jar that is to be made free from oxygen. The indicator gauze is decolored in sixty minutes at 37 C. In the total absence of oxygen, decoloration occurs in twenty minutes. If there is any leak of oxygen into the jar, the color returns to the gauze. The indicator thus allows constant control, and the cultivation of anaërobes is thus immeasurably facilitated. An ordinary short, wide preserve jar gives ample surface area for absorption, and the cover fits air tight. For a jar containing 400 c.c. he uses 10 c.c. of 20 per cent. potassium hydroxid plus 3 c.c. of a 44 per cent. solution of pyrogallic acid.

Visit to the Woman's Hospital in New York.—Bergsma says that the gas test shown him in this hospital to test the permeability of the tubes in cases of sterility was new to him. It has been applied in the hospital in 200 cases, with operative control in fifty. When both tubes are obstructed the response is decisive. (The technic was described on page 1791.)

Hygiea, Stockholm

March 16, 1922, **84**, No. 5

*Disease of the Patella. S. Johansson.—p. 161.
*Gas Interchanges in the Lungs. T. Thunberg.—p. 167.
Acute Arsenic Poisoning in Six Children. J. S. Hesser.—p. 176.

April 15, 1922, **84**, No. 7

The Blood Pressure Question. E. Zander.—p. 257.

Disease of the Patella.—Johansson describes with illustrations a typical condition of the apex of the patella found in boys between 10 and 15. It is evidently of the same nature as the Osgood-Schlatter disease of the tuberosity of the tibia.

Is There a Genetic Connection Between the Oxygen Inhaled and the Acid in the Carbon Dioxid Exhaled?—Thunberg enumerates and compares the various theories on this subject